ENGINEERING NEWS-RECORD

NOV. 17, 1960

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UNIV MICROFILMS INC ANN
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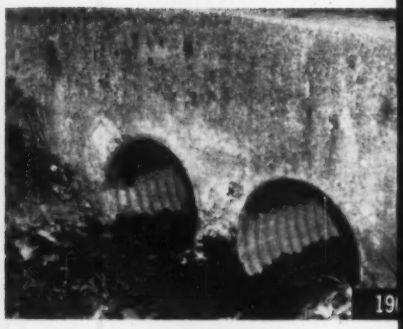
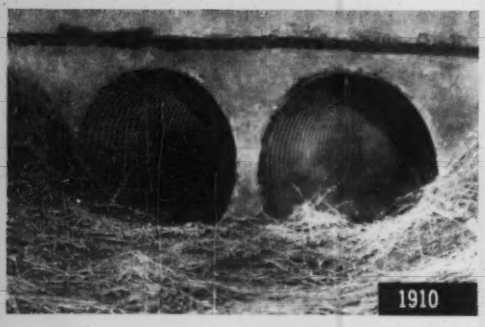
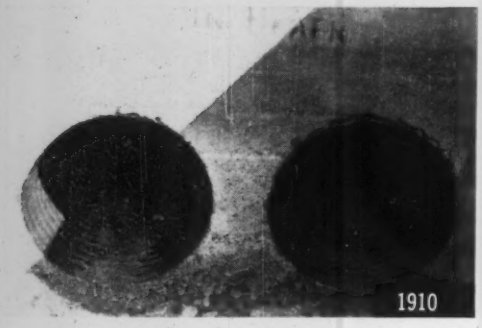
A McGRAW-HILL PUBLICATION

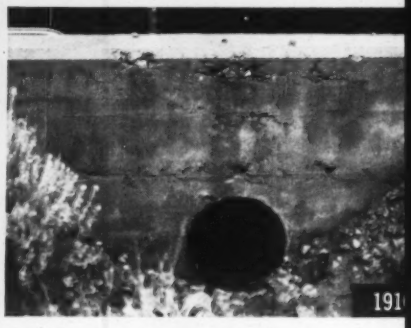
These Armco Pipes are 50 Years Old...or Older

New steels are born at Armco









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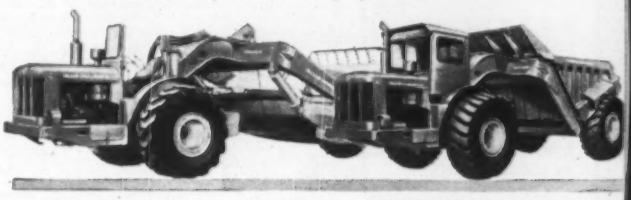

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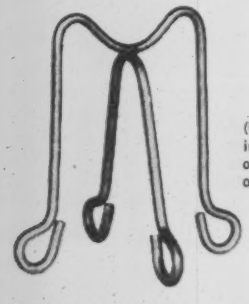

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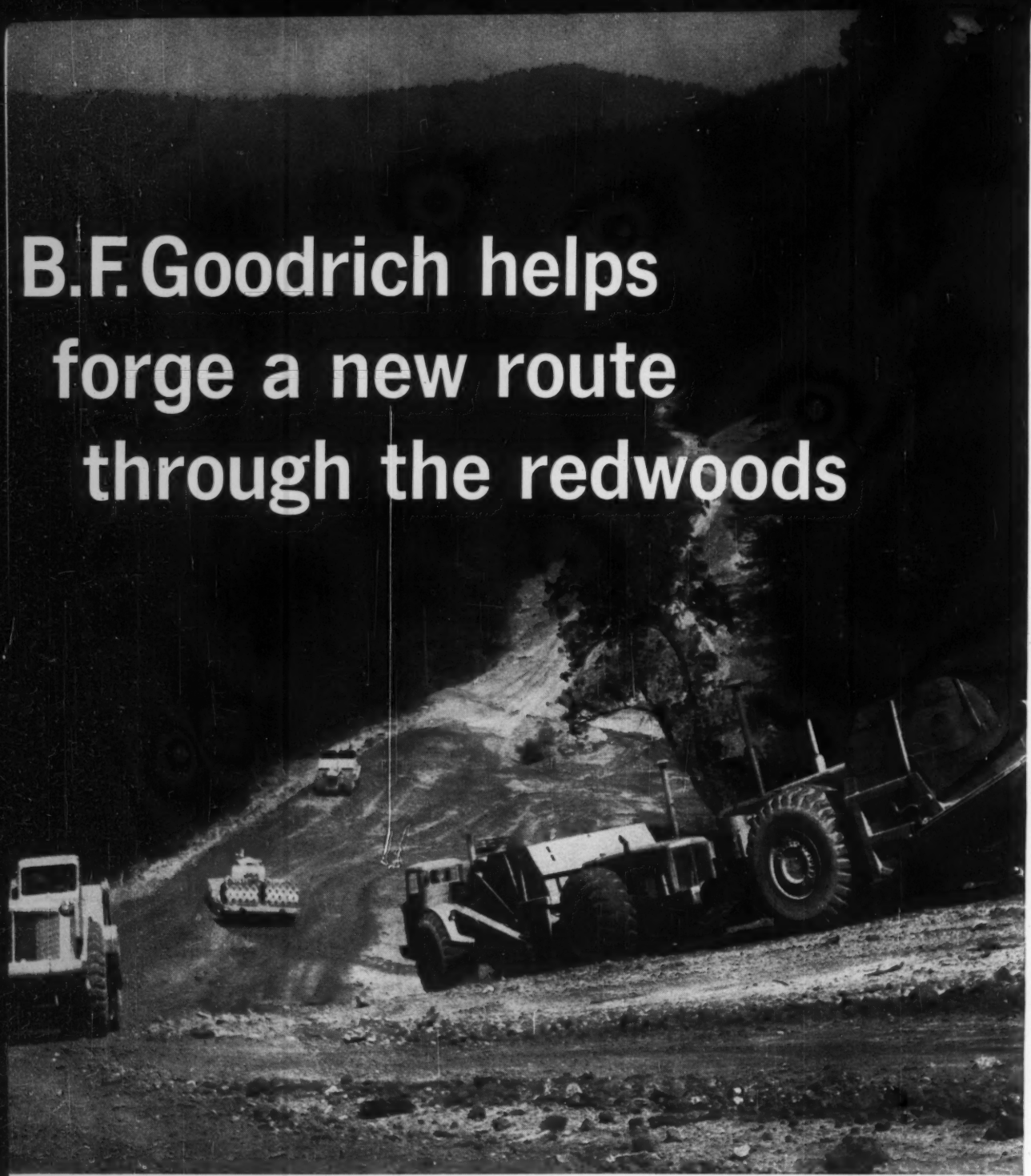
B.F.Goodrich helps forge a new route through the redwoods

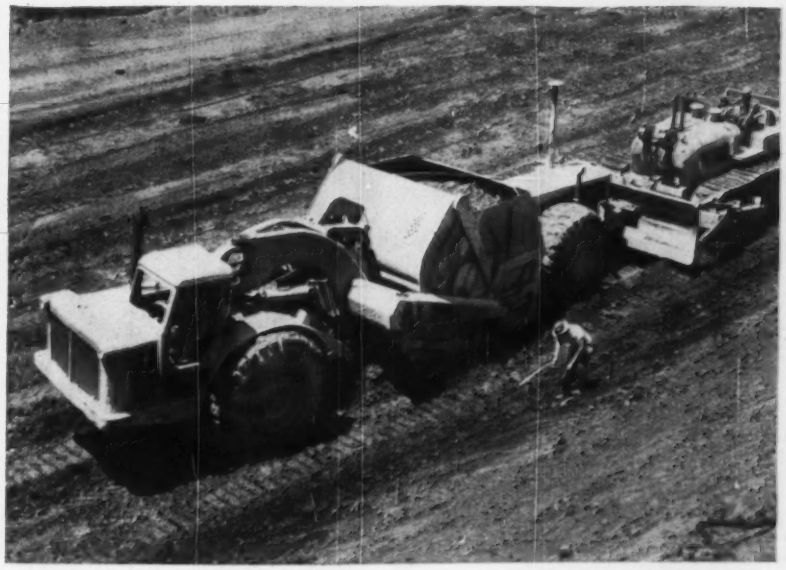


MORRISON-KNUDSEN EARTH-MOVERS climb 42% grade after delivering 35 tons of fill dirt. Equipment works 18 hours a day, 6 days a week, to speed completion of Redwood Highway bypass near Weott, California. B.F.Goodrich Rock Service tires will help move 3,300,000 cubic yards of earth over rocky, mountainous terrain, have performed so well already that many have been retreaded *twice*.

TWO-LANE U.S. HIGHWAY 101 snakes through California's famous forest of giant redwoods—a tourist's delight but a trap for through traffic. To remedy this, a new 4-lane bypass is under construction, 7.5 miles of it by Morrison-Knudsen Co., Inc. On M-K equipment you'll find B.F.Goodrich Rock Service tires.

This $5-million project calls for the excavation of 3,300,000 cubic yards of dirt. Earth-movers haul as much as 35 tons at a clip over ripped rock, twist up and down grades as steep as 42%. Massive B.F.Goodrich Rock Service cleats get a firm, non-slip grip on the ground, pull in forward or reverse.

For work in razor-sharp, tire-killing rock, B.F.Goodrich builds the Rock Service with new Cut Protected compound. BFG Flex-Rite Nylon cords withstand double the impact of ordinary materials, resist heat blowouts and flex breaks. Result: more retreadable tires. Morrison-Knudsen finds Rock Service tires often can be retreaded *twice*.



FOREMAN SETS GRADE STAKES as BFG Rock Service tires shoulder another 35-ton load of fill dirt. Finished 4-lane highway will be 60 feet wide, surfaced with 4-inch-thick asphalt, will have 4 bridges and 100,000 feet of 2" horizontal water drain pipe. B.F.Goodrich on-the-job tire service is available on projects such as this.

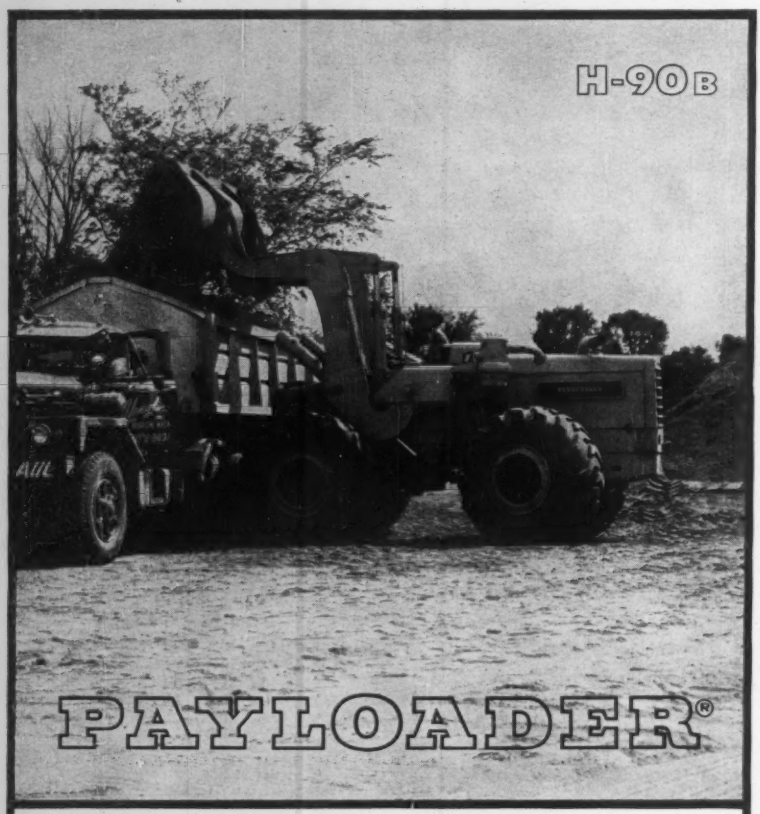
RETREADED B.F.GOODRICH ROCK SERVICE TIRE in foreground has already given over 2,200 hours of service (some tires on the project have worked over 3,200 hours). BFG builds the Rock Service in 3 compounds — Regular; Cut Protected (CP) for short hauls over jagged rock; and Heat Resistant (HR) for longer runs at higher speeds.

Supplying contractors with longer-wearing BFG tires and providing on-the-spot tire service that saves time and money are everyday jobs for your B.F.Goodrich Smileage dealer. On many projects B.F.Goodrich supplies everything from tires to boots to belts through its new Unified Contractors Program. Whatever *your* need, it will pay you to check first with your BFG dealer. You'll find him listed under Tires in the Yellow Pages. Or write *The B.F.Goodrich Company, Akron 18, Ohio.*

B.F.Goodrich

Specify B.F.Goodrich Tubeless or tube-type tires when ordering new equipment

Smileage!



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Reader Comment

Does Money Talk?

SIR—Three cheers for Professor Holcomb! (ENR Oct. 20, p. 74).

His comments on low salaries for civils strike to the heart of a long festering sore among civil engineers. Much has been said about education. Requirements for registration are carefully outlined. Technically, the profession is thoroughly policed. But who gives these men credit where it counts to them personally, in their pay check? Money seems to be a dirty word.

Many civils must work in civil service organizations. Let's take a look at California's Division of Highways (ENR Oct. 13, p. 89), probably the highest paying civil engineering organization under civil service. The man running this 14,000-man show, which spends $460 million annually, makes $1,707 per month. Eight grades lower, at $530 per month, is the junior civil engineer fresh from college. He will spend his engineering lifetime climbing the eight grades (if he makes it). In 40 years he has an outside chance of averaging a $30 raise per month. Salarywise, a career in such an organization looks bleak indeed.

Contrast this picture to the private corporation of like size. The top man makes several times $1,707 per month for like responsibility. Positions along the line also pay considerably more.

Small wonder interest in civil engineering among our young men is on the wane. They are simply looking before they leap.

BYRNE EGGENBERGER
Senior Structural Engineer
California State Division of Architecture
Los Angeles, Calif.

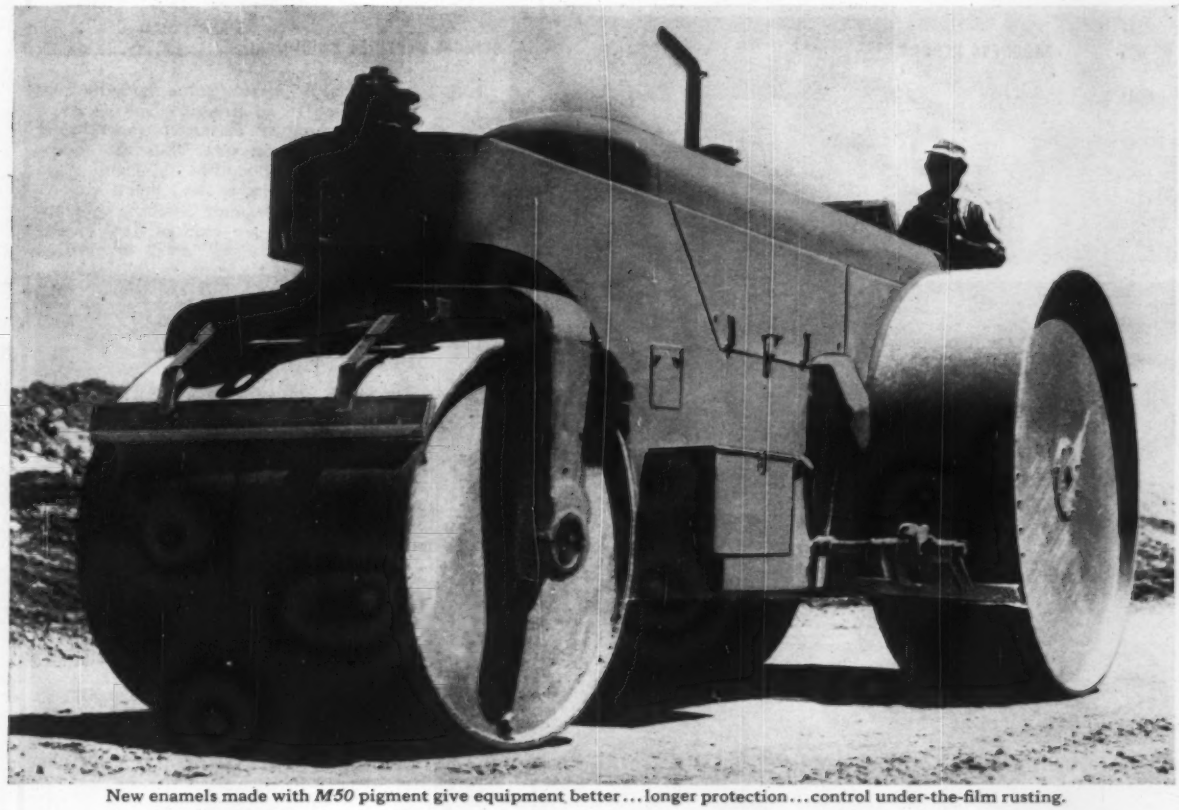
SIR—Professor Holcomb's view seems rather far fetched.

Any man who goes into any profession or business solely for the financial reward is doomed to an unhappy existence. Any man who goes into engineering because he likes engineering will very probably in the end be highly successful and will very probably be well rewarded financially.

To a certain extent, engineers are born and not made. Although I am heartily in favor of engineers having an engineering degree, we all know

(*Continued p.* 9)

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.



New enamels made with *M50* pigment give equipment better... longer protection... control under-the-film rusting.

New! One-coat equipment enamels with built-in rust inhibition...

keep on fighting rust even when damaged in service

Now, for the first time, you can have the rust inhibition of a primer and the durability of a finish coat, combined in a single coat of enamel.

And what is more, the paint can be tinted to match most standard equipment colors.

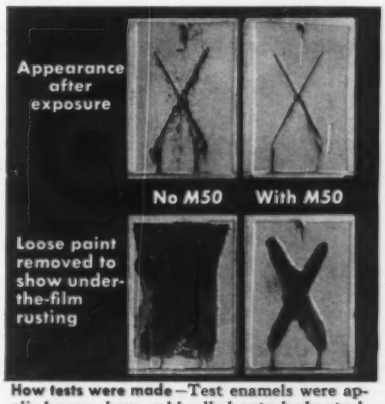
What gives these new one-coat enamels their exceptional properties is a unique new type of pigment, *M50*® basic lead silico chromate. In this pigment, the active ingredient is basic lead chromate solidly fused to an inert core. Fused lead chromate has not only exceptional rust inhibiting action, but also superior resistance to weathering.

Greatly inhibits under-the-film rust creepage, too

As you've probably noticed, when ordinary enamels are nicked or damaged in service the rust that starts spreads under the paint in no time. As this rust creepage progresses, paint flakes off to open the way for further corrosion.

Exposure tests (see photograph at right) at National Lead Laboratories show that this damage is very sharply reduced when *M50* pigment is in the enamel.

Before you order paint again . . . look into these unusual new enamels. They can be made up by your regular paint suppliers in nearly all standard equipment colors.



How tests were made—Test enamels were applied over clean, cold-rolled auto body steel, scored, and then exposed to 5% salt fog for 300 hours. The two panels at top permit you to compare appearance of enamels after exposure. The two panels at bottom have loose paint removed so that you can compare the true extent of rust creepage under each enamel. Note also, the greater film strength shown by the *M50* enamel.

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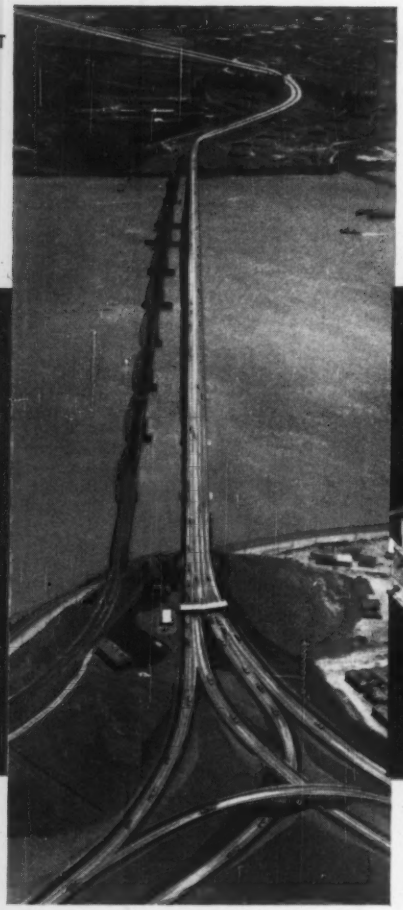
General Offices: 111 Broadway, New York 6, N.Y.

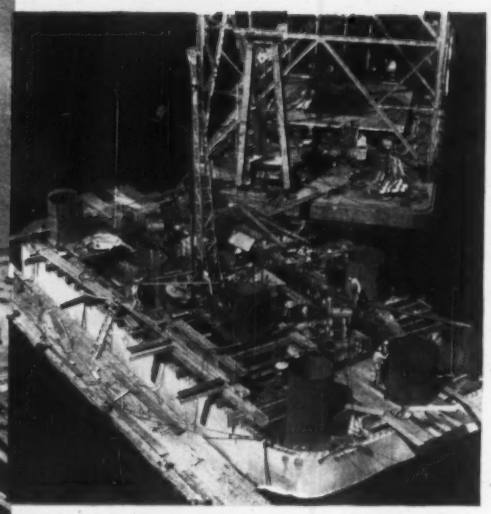
PROGRESS REPORT

BENICIA-MARTINEZ BRIDGE

HOW TO BUILD A BRIDGE



Drawing of high level Benicia-Martinez Bridge across upper San Francisco Bay. Scheduled for completion in 1962, bridge will be 6215 feet long, a maximum of 187 feet high, 62 feet wide between curbs.



First of nine concrete box piers is floated to pier site. Each weighs 1700 tons, is 44 feet wide, 86 feet long, about 25 feet deep. Caissons are installed through footing into a minimum of seven feet of bedrock.

New idea: floating concrete footings in bridge pier construction — fabricated and erected by Yuba

Engineers and contractors are taking a close look at the time and cost saving ideas being put to work by Yuba in the construction of this mile long bridge. Especially to the new method of box footings for the nine water piers, designed by the California Division of Highways and developed by Yuba engineers.

Briefly, box footings of reinforced concrete are prefabricated with three rows of six cells, 13 feet square. These, with circular spaces provided for caissons, give buoyancy for floating the footings to the sites. After 80″ diameter casings are extended down to firm material, holes are drilled to a depth of at least 7 feet into bedrock. Caissons are seated into bedrock drillings, reinforcing cages are set, tremie concrete is poured. These legs are used to support box footings, upon which slipforms are then used to complete the piers to final elevation.

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that an engineering degree does not make an engineer. All of us perhaps know many engineers with a high school education who now supervise many engineers with college degrees. To my mind, no greater disservice could be rendered young would-be engineers than to hold out financial attractions to them.

No institution, to my knowledge, is capable of teaching judgment and leadership. A man either has it when he is born or never acquires it. The most that edcuational institutions can do is to help encourage and develop such leadership as the student already possesses.

J. Roy Pennell
(A former teacher of engineering)
Pennell & Harley, Inc.
Spartanburg, S.C.

Unity and Enormity

Sir—I am compelled to answer the statement by Noah E. Hull, president of the National Society of Professional Engineers (ENR Oct. 27, p. 17).

This attitude of not-playing-at-all-unless-you-play-my-way has seemed to be the guiding light of the engineering profession through the past decade. While societies of architects, doctors, and attorneys have been growing in unity and professional stature, the engineers have been bickering and growing less in unity and certainly sliding down the scale from real professional recognition.

So I ask, Mr. Hull, how could any candidate grasp the enormity of a role to be played by the engineering profession when the NSPE still cannot present one uniform code of professional ethics or professional registration to their fellow societies? When is the engineering field going to stop being used by their allied professions and become a recognized professional body equal to the recognition they duly deserve?

Richard L. Kindsvatter
Hagerstown, Md.

Sir—Noah E. Hull, president of the NSPE, should consult Noah Webster, of dictionary fame. I doubt very much whether the role to be played by engineering and the sciences indicates exceeding wickedness or outrageousness.

Enormity does not refer to size.

Laurence McKinney
James McKinney & Son, Inc.
Albany, N. Y.

Right Ocean, At Least

We incorrectly identified Swift Dam as a project of Pacific Gas & Electric Co. located in Oregon in the October 20 issue (p. 23). It is owned by Pacific Power & Light Co. and is located in Washington.

(*Reader Comment continued p. 12*)

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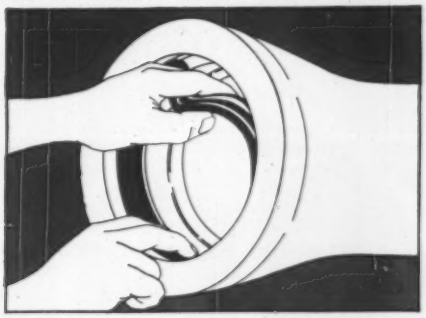
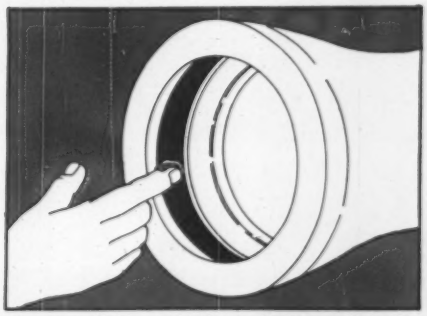
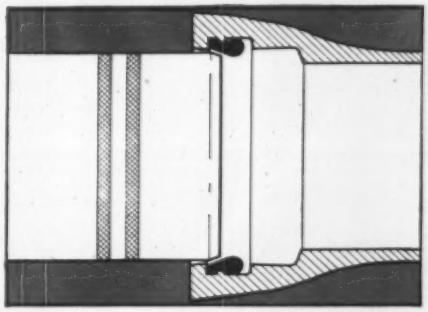


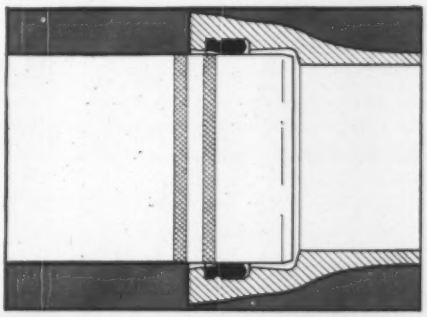
Insert gasket with groove over bead in gasket seat . . . a simple hand operation.



Wipe film of Tyton Joint® lubricant over inside of gasket. Your receiving pipe is ready.



Insert plain end of entering pipe until it touches gasket. Note two painted stripes on end.



Push entering pipe until the first painted stripe disappears and the second stripe is approximately flush with bell face. The joint is sealed . . . bottle-tight, permanently! The job's done . . . . fast, efficiently, economically. Could anything be simpler?

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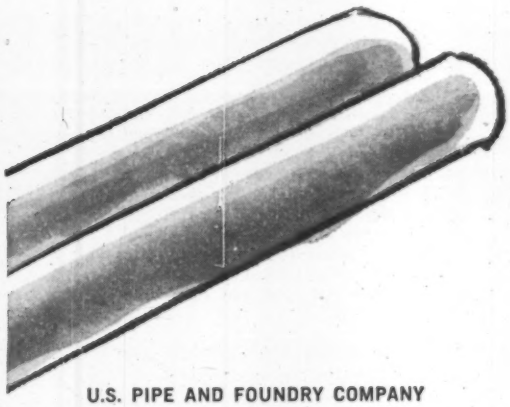

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. . . Reader Comment

Educating CE's

SIR—Having followed the prelude to, and your article on, the conference "Educating Civil Engineers," and various readers' comments about the above-mentioned conference, I'd like to express an opinion as a recent civil engineering graduate with only eight years of professional experience.

I would have to agree with those who indicate that—for the work performed by most engineers—three years or less higher education would be all that is required. However, this is only true of the routine engineering duties, and after a number of years' experience, the engineer with the added education will be the one who is in charge of the design or construction projects—the administrator.

Most educators seem to forget that in a four-year engineering curriculum, the student is allowed only two or three elective courses outside his major. This is not sufficient in this day and age when the means of communication and world situation are advancing at a speed far in excess of our educational advances. The engineer must also be a man with a definite personality; he is not a mere tool.

I would then say that our nation needs engineers (civils included) whose schooling covers a minimum of five years' higher education, of which one year (spread over the five-year period) should be along the lines of the Liberal Art majors.

MAJ. MORRIS J. TURNER
Corps of Engineers (USAR)
Walla Walla, Washington

Slag, Not Rock

SIR—The item "Rumbler Strips Warns Drivers" (ENR Sept. 22, p. 160) carries a reference to rumbler strips as used in Cook County, Ill., being installed with "asphalt and rock strips." The reference to use of "rock" by Cook County engineers is in error as, after rather extensive investigation, they have standardized on use of asphalt and blast furnace slag.

The periodical, COOK COUNTY HIGHWAYS, September, 1958, carries a rather extensive discussion of rumbler sections. Therein it is noted that "after several experiments with materials, the Department's procedure has become standardized for the present. The binder used is petroleum asphalt with penetration of 100-120, and the rumbler material is one-inch screened slag precoated with asphaltic liquid."

An important feature of the rumbler section, in addition to creating the rumble effect, is the non-skid surface, permitting vehicles to stop, and in this respect, blast furnace slag is outstanding.

E. W. BAUMAN
Managing Director
National Slag Association
Washington, D. C.

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You can check this with your local Dodge Distributor. Ask him—or write us for the Dodge Bearing Bulletin.

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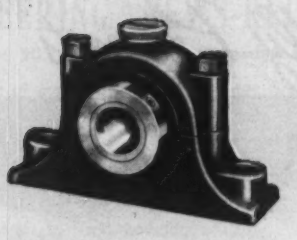
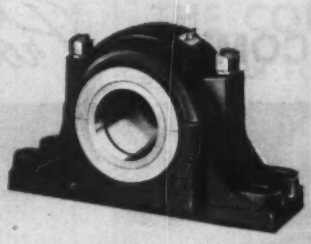
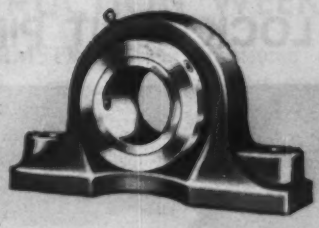


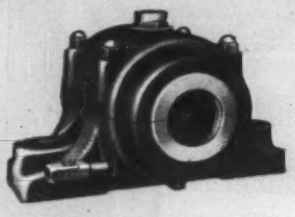
DODGE PILLOW BLOCKS WITH TIMKEN TAPERED ROLLER BEARINGS



DODGE SPHER-ALIGN PILLOW BLOCKS WITH SPHERICAL ROLLER BEARINGS



DODGE BALL BEARING PILLOW BLOCKS



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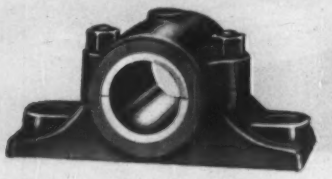
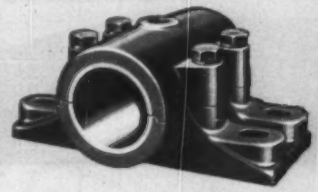
DODGE BRONZOIL PILLOW BLOCKS

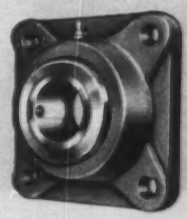
DODGE BRONZE BUSHED PILLOW BLOCKS



DODGE JOURNAL BEARINGS SOLID AND SPLIT



DODGE HEAVY RIGID PILLOW BLOCKS



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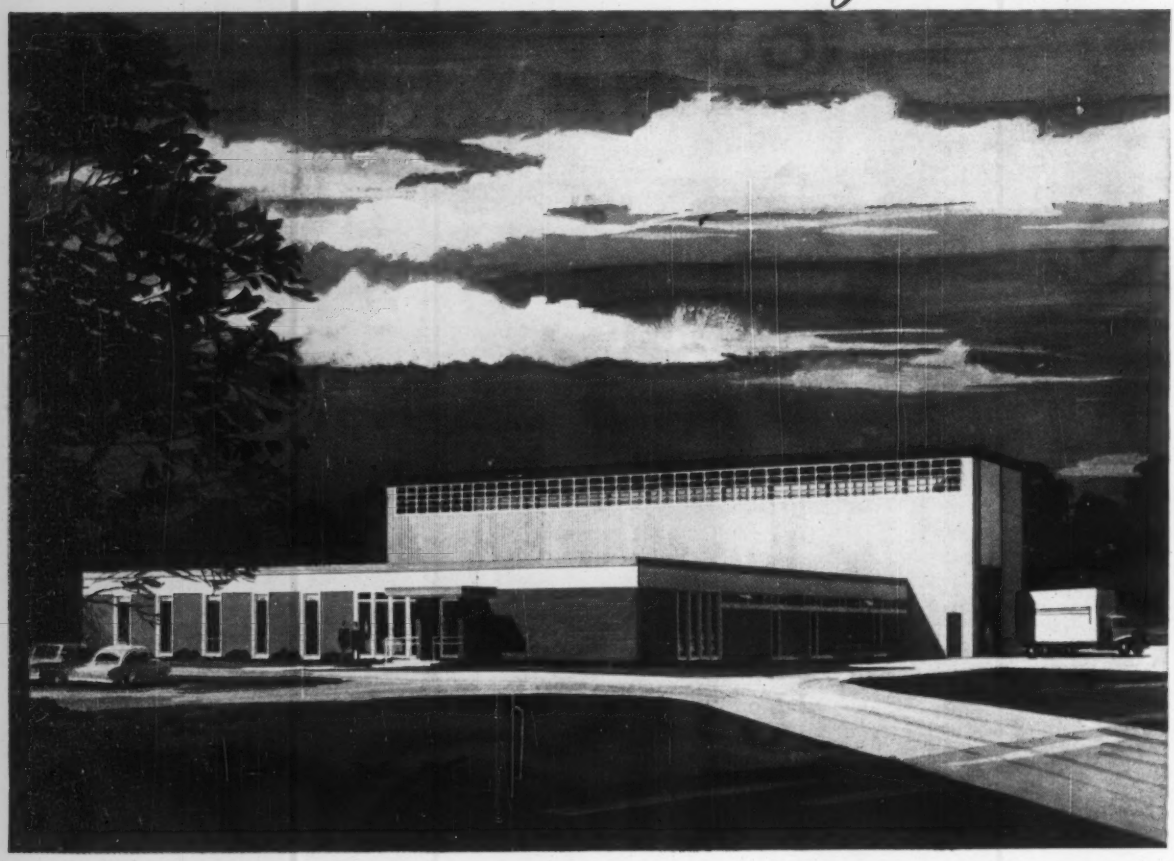

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ENGINEERING NEWS-RECORD

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THE CONSTRUCTION WEEK

NEW JOB FOR ARMSTRONG—Commissioner of Public Roads Ellis L. Armstrong will become president of the Better Highways Information Foundation within a few weeks. BHIF announced his acceptance of the post last week, before results of the election were known. He resigned from BPR on Election Day.

BILLIONS FOR FLOOD CONTROL?—Construction of $11.5 billion worth of flood control works will be required by 1980. So reports the Corps of Engineers to the Senate Select Committee on National Water Resources, now near the end of a two-year study of water resources needs through 1980. The Corps says potential flood losses by 1980 may climb from the present $700 million a year to a billion dollars a year.

INTO THE BLACK—"Substantial" revisions of estimates of earnings on projects in process helped push Merritt-Chapman & Scott Corp.'s construction operation into the profit column in the third quarter. But losses in the shipbuilding and metallurgical end of MC&S's business brought a consolidated net loss of $3.1 million for the quarter. Gross revenues of $98.6 million were 9% under a year ago.

MILE-SQUARE SCOPE—Under way in New South Wales, Australia, is a radio telescope potentially 20-times more powerful than the Jodrell Bank telescope in England. The telescope will comprise two one-mile-long arms, one oriented north-south and the other east-west to form a huge cross.

ERRORS AND OMISSIONS INSURANCE—Meeting in Pittsburgh last week, Consulting Engineers Council heard reports that professional liability insurance had been required of consultants seeking work in the states of Connecticut and Washington. CEC appointed a committee to check out the reports and see where else and why such insurance might be required.

CONSTRUCTION IN JAPAN—Last week, the Imperial Household Board announced in Tokyo that Junzo Yoshimura, a university professor, had been commissioned to work on design of a new Imperial Palace for Japan; construction is to start in '63 on what's estimated as an $18.9-million structure. Next week, ENR's Editor Waldo G. Bowman reports from Asia on construction in Japan.

FALSE START—City officials and a work crew dedicated the start of Miami's new $20-million port by clearing four acres of land on an island in Biscayne Bay and tossing Port Director Arthur Barlow into the water from the island. Last week they found out they had been on the wrong island. The right island is 500 ft away. "An administrative mistake," explained city officials.

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WASHINGTON OBSERVER

- **Base dispute still simmers**
- **Interstate work spurts**
- **Blatnik set to go again**

● **The Air Force is having a tough time coming up with an answer to the problem of jurisdictional disputes at missile bases.**

As things stand now, the subcontractor on a communications net at Forbes Air Force Base (being built by Kellogg Division of IT&T for lease to the Air Force) has won out.

The subcontractor—Ets-Hokin-Galvin—is sticking with his contract with the IBEW despite an award from the Joint Board which gave certain jobs to the operating engineers. Ets-Hokin-Galvin used the Taft-Hartley law procedures available to it to get an injunction against further work stoppages. Under Taft-Hartley, the General Counsel of the NLRB is required to go to court and ask for a temporary injunction in a case involving jurisdictional disputes—and the court is required to issue such a temporary injunction until the case is settled privately through the Joint Board, or by an NLRB ruling following a hearing. Usually, in such cases, the NLRB in its decisions has followed the recommendations of the Joint Board.

Thus, the dispute is right back where it was when the jurisdictional conflict arose. An NLRB hearing on the case is yet to be held. In general, the record of the NLRB shows it upholds the Joint Board more often than not.

But now the situation that caused the dispute is spreading: The same subcontractor has identical work under way at Schilling AFB and coming behind this are millions of dollars more of work that still must be done elsewhere.

—

● **The pace of work on the Interstate highway system showed a noticeable spurt during the quarter ending September 30.** All told, 542 miles were completed, more than double the figure for the preceding quarter.

Nearly 9,600 miles (about 23%) of the 41,000-mile superhighway network are now open to traffic; of this total, 4,380 miles have been built since the program began in 1956. The remainder includes tollroads and others incorporated in the system.

Contracts involving 24,380 miles of the ABC system were under way during the quarter bringing to 106,400 miles the total under this program in the past four years.

—

● **The first post-election round of hearings by the Blatnik subcommittee investigating highway scandals is scheduled for December 5.** All but one of the subcommittee's 18 members won re-election. (The loser was Rep. Charles H. Brown, Democrat of Missouri.)

The subcommittee has on its schedule situations in Florida, Georgia, West Virginia, and New Mexico. The Florida investigation involves right-of-way purchase and alleged "payola" (see p. 28). In Georgia it is alleged corruption occurred similar to that revealed in the Skelly By-pass scandal in Oklahoma.

The New Mexico and West Virginia situations could be held over until next year. Both involve stretches of new highway showing signs of poor construction.

HERE'S HOW BORDEN FLOOR GRATING CUTS COSTLY FIELD CORRECTIONS

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2. Each finished panel is carefully checked for accuracy of dimensions.
3. Each panel is plainly marked with its number to insure quick, easy installation.
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Kennedy Aims to Boost Building

In one illuminating nutshell, President-elect John F. Kennedy wrote to a group of his business and professional supporters last September 15 that he would, if elected, "place great emphasis on measures to insure a high volume of housing construction, particularly in view of the construction industry's importance to the general well-being of the national economy."

Now that he has been elected, what can the industry expect? What kind of people will the new President surround himself with?

Senator Kennedy will be much more inclined to spend more money faster for federal participation in or stimulation of construction projects than President Eisenhower was during the past eight years or Vice President Richard M. Nixon would have been during the next four had he won the presidency.

Secondly, Senator Kennedy will lean heavily toward the liberal side on economic questions in all their diverse forms, and his closest advisors will be people of the liberal stripe.

What this translates into, in terms of actual legislation, is yet another question. The Democratic Party will have substantial working margins in both House and Senate, but this is no guarantee that his legislative program (see p. 23) will glide through. The Southern Democratic-Northern Republican coalition that has been in effective control of Congress through much of the past decade survives virtually intact, and, in fact, looks potentially stronger in 1961 than it was, say, in 1960.

This means that John F. Kennedy's tough-mindedness, which hardly anyone can doubt any more, must be brought to play now in concert with skill in legislative manipulation, a talent he has yet to demonstrate in depth. The President-elect will be more aggressive than President Eisenhower, and he will not hesitate to use the powers of the presidency on recalcitrant congressmen.

I. Men Around Kennedy

President-elect Kennedy will rely mainly, in the beginning at least, on these key persons to represent the Administration's interests at the Capitol:

• Vice President-elect Lyndon B. Johnson of Texas, moving up from his job as Democratic Majority Leader in the Senate. Senator Johnson is a master of the intricacies that go into the behind-scenes bargaining and dickering that influence legislative processes.

President-elect John F. Kennedy

• House Speaker Sam Rayburn of Texas, Senator Johnson's good friend and political mentor, who has behind him 47 years of uninterrupted congressional service.

If the new President is to break the influence of the coalition, one of the first pressure points will be in the House Rules Committee, a conservative-dominated body that has been a burial ground for liberal legislation of the kind that constitutes Kennedy's New Frontiers program. He will need Speaker Rayburn's sympathy and overt help either to change the rules of procedure or to water down the present conservative majority by the addition of new, liberal Democrats to the Rules Committee.

Upon Senator Kennedy's success at bringing down the coalition depends his chance for enacting such important parts of his legislative program as federal insurance to cover medical care for the aged (financed by a rise in the Social Security tax), large-scale public housing programs, federal aid for school construction and improvement of teacher pay, and his labor reforms.

Senator Kennedy has a well-publicized braintrust, a group from Harvard and other eastern universities, which has been feeding him a steady flow of ideas and position papers.

Prominent among them is Harvard Law Prof. Archibald Cox, a dynamic 38-year-old, who has been the unofficial chief of staff for the academic brigade and President-elect Kennedy's top specialist in labor legislation. Also among the group are such liberal figures as the Harvard historian Arthur Schlesinger, Jr., and the Harvard economist and author John Kenneth Galbraith. Senator Kennedy's campaign theme, in many aspects, coincided with the Galbraith philosophy—set out in the best-selling book, "The Affluent Society"—that the economy has reached the point where spending for public needs in such areas as housing, schools and resource development clearly must take priority over luxury in the private sector.

In Senator Kennedy's inner circle will be Theodore Sorensen, a brilliant Nebraskan who has been the senator's administrative assistant, Kenneth O'Donnell, who will be special assistant and Pierre Salinger, who will be press secretary.

Of course, a whole new Cabinet will come into Washington. And the fabric of the under and assistant secretariat will be completely new. The Commissioner of Public Roads, Ellis L. Armstrong, has already resigned (see p. 17); Bertram D. Tallamy will leave as Federal Highway Administrator.

David Hamil will leave as Administrator of the Rural Electrification Administration.

Floyd E. Dominy will be out as Commissioner of the Bureau of Reclamation.

At the Federal Power Commission, where the important and controversial Nez Perce vs. Mountain Sheep dams are up for decision, Senator Kennedy will have two appointments to make as soon as he takes office, and the term of Arthur Kline expires in June. So a Kennedy affected commission will make the decision whether to permit private development of the Middle Snake or not.

Some insiders are raising the question of whether Surgeon-General Leroy E. Burney will be re-appointed when his term runs out January 31. Up to now, this post has been considered a career, non-political job. But they recall that Dr. Burney had been on loan from Public Health Service to the State of Indiana for years, and that Indiana politicos—notably House Republican Leader Charles Halleck—were largely instrumental in getting him appointed to his present post. On the other hand, engineer Mark D. Hollis, assistant surgeon-general, is almost certain to stay on.

(*Turn the page*)

II. The Kennedy Program

Details of the President-elect's program will show early in the coming year—through the budget, which will be President Eisenhower's before Senator Kennedy revises it, and in the series of messages that every President addresses early in a session to Congress. Despite the thinness of his popular vote margin, a fact widely interpreted to mean that Senator Kennedy received no blank check for his program, he is portrayed as determined to redeem campaign pledges.

Some of the key points:

• **Monetary policy.** This is the keystone of the new Administration's approach. Senator Kennedy sees reversal of the Eisenhower tight money policy as the first essential if economic growth is to reach the annual level of 4½ to 5% that he considers a minimum necessity.

• **A new Cabinet-level Department for Urban Affairs.** This probably will grow up around the nucleus of the Federal Housing Administration. From this new power center, the Kennedy Administration will launch into expanded programs for stimulation of private housing construction, more public housing, solution of mass transit problems, urban renewal and slum clearance, and abatement of air and water pollution.

These are typical of the kinds of programs that the President-elect will fight for on grounds that public financing, or federal assistance of a less direct nature, is the only effective way to achieve them. He is firmly wedded, for example, to the notion that the nation must have at least 2 million new homes a year.

Creation of this new Department for Urban Affairs will require congressional approval, and this may not be won without a fight. But Senator Kennedy probably will have his way. Clearly, this department will be involved in spending large sums of money, most of it headed into the construction business.

• **Defense.** The Kennedy Administration is expected to speed construction for hardening missile sites.

• **Depressed areas.** Now the way is clear for final enactment of a big federal loan-grant program designed to alleviate chronic unemployment in single-industry areas that have fallen upon bad times—the textile towns of New England, the rail and coal centers of Pennsylvania, West Virginia and southern Illinois, for example.

• **Public works.** The Eisenhower Administration's late policy of "no new starts" is a dead ticket. So is President Eisenhower's idea that rural electrification co-ops should pay more interest than 2% on their federal loans for construction of generation and transmission facilities. Indeed, Senator Kennedy will look favorably upon proposals to make low-cost money available to co-ops for expansion.

One little-noted, but immense, implication of Senator Kennedy's victory will be a warm White House reception for the gigantic water resources study undertaken during the past two years by a select Senate committee headed by Sen. Robert S. Kerr (D., Okla.). The report is due in January, and it seems reasonable in advance to suppose that the nation is moving close now to a master plan for an immense construction program to conserve water.

Sen. Henry M. Jackson, (D., Wash.), who played a key role in the Kennedy campaign as National Democratic Chairman, envisions a big move quickly toward development in the Pacific Northwest. Power and flood control benefits resulting from the recent agreement about Canadian storage on the Columbia River, says Senator Jackson, are no reasons to delay water development inside the U.S.

III. Kennedy and Labor

Union leaders will look for a resumption of the labor legislative campaigns that stalled in the 86th Congress, but this time with President Kennedy rather than Senator Kennedy behind them. Their prospects are better than they have been in the past 15 years.

Number one on the Kennedy-Labor list, is hiking the federal minimum wage to $1.25 and extension of coverage to about 3 million workers in the retail and service trades. The Kennedy bill last year was trimmed in the House and conferees failed to compromise. Senator Kennedy held out against the House, agreeing with union leaders that it would be better to wait for next year and a broader bill.

Though Senator Kennedy failed to redeem a pledge that situs picketing would be acted on last session, he has backed it all the way.

A Kennedy Administration does not automatically insure success of both, or either of these two measures. Without the modifying effect of President Eisenhower and Labor Secretary James P. Mitchell, congressional Republicans may fight harder against both measures. Too, it's at least a question whether Southern Democrats are going to buy President Kennedy's White House program any more than they did Senator Kennedy's labor program. But his pledges on both pieces of legislation, particularly the first thrust of minimum wage, gives both an impetus that could give labor leaders what they want.

On other legislation Senator Kennedy wants to amend the Taft-Hartley Act's national emergency section to handle critical strikes. He wants the White House to have a variety of weapons against a strike, not just the appointment of an investigatory emergency board and an 80-day injunction.

Kennedy

President-elect John F. Kennedy will need a cooperative Congress to enact his proposals for a speed-up and expansion of federal construction activities.

Democratic leaders count on party loyalty to put the program through. A crucial test of this loyalty may develop over a fight to break the power of the House Rules Committee.

Lines are already drawn for this battle. Sen. Lyndon Johnson, Vice President-elect and White House ambassador to Congress in the new Administration, has made it clear that the Rules Committee bottleneck must be broken. During the Eisenhower years, Southern Democrats and Republicans in control of the all-powerful rules group bottled up a series of liberal measures and denied the House a chance to vote on them.

The Rules Committee fight will show how far Southern Democrats will go to support the new President. Should the Southerners line up with their conservative Republican counterparts to resist a change, the new President and party leaders in Congress will try to crack heads.

If the Rules Committee roadblock can be removed without a bitter battle, the Kennedy program will have a fair chance of enactment. There would be little question about favorable action on parts of the program that the Democrats have tried for years to push through: housing and urban improvement programs, school construction, aid to depressed areas, stepped-up development of river basins, and increased assistance to pollution control, hospitals and health facilities.

Less certain of approval would be other Kennedy proposals that look to enlargement of federal power enterprises, transmission lines and steam plants, to reduced dependence of public systems on interconnected private utilities.

Congressional thinking on all these matters has not changed. The makeup and basic thinking of the 87th Congress is much the same as the 86th. Democrats and many Republicans, would welcome, for example, the Kennedy proposal to establish more liberal criteria for evaluating new resources projects.

But Congress would still draw the line on spending federal funds for facilities that are available from other sources at less cost to the taxpayer.

Every measure recommended by the President will get the customary sifting and screening of the appropriate legislative committee in each house. And there will be few changes next year of

Needs Party Loyalty

the powerful chairmen and members on these committees.

One significant change will take place on the Senate Interior Committee, where Sen. Clinton P. Anderson (D., N. M.) moves up to the chairmanship vacated by the retirement of Sen. James E. Murray of Montana. Senator Anderson is giving up for two years the chairmanship of the Joint Committee on Atomic Energy, which is now destined to go for that period to a member of the House, Rep. Chet Holifield (D., Calif.).

Another important change will come in the House Labor Committee. There a conservative, Graham A. Barden (D., N. C.), will be replaced by a liberal, Adam Clayton Powell (D., N. Y.). Under Representative Powell, the committee will be much more responsive to such matters as a higher minimum wage, situs picketing and other legislation back by organized labor.

Under Senator Anderson, the Interior Committee is expected to show a new birth of vigor, in tune with the program of President Kennedy for greater development of natural resources.

Other Senate committees will continue under their present chairmen. New Mexico's senior Democratic Senator, Dennis Chavez, heads Public Works. The next ranking member, Sen. Robert S. Kerr (D., Okla.), a powerful figure on water resources in the new Administration, stays as chairman of the subcommittee on flood control and rivers and harbors.

Sen. Pat McNamara (D., Mich.), will retain the chairmanship of the public roads subcommittee.

Senate appropriations, relied on traditionally to make second-round additions to money bills sent over by the House, will continue under Arizona's veteran, Sen. Carl Hayden, with no changes forecast for the chairmen of subcommittees. Sen. Allen J. Ellender (D., La.), head of the public works group, may find fewer additions needed for new starts in House bills under a Kennedy Administration.

House leadership on public works also remains unchanged. With Rep. Charles A. Buckley (D., N. Y.) returning as chairman of the committee, Maryland's Rep. George H. Fallon will remain head of the critical subcommittee on roads during the extended hearings expected next year. The Bureau of Public Roads in January will give Congress one report on allocation of highway costs among beneficiaries and another on the revised estimate of expenditures needed to complete the Interstate system.

Hearings of Rep. John A. Blatnik's highway investigating subcommittee, appointed by chairman Buckley last year, will continue during the next session. The subcommittee plans to resume public hearings next month (see p. 28).

Vice Pres-elect Lyndon B. Johnson

House Appropriations Committee members and staff will begin discussions next month with agency officials on government budgeting for the first fiscal year of the new Administration. President Eisenhower has the responsibility for presenting the fiscal 1962 budget to Congress in January, but his fiscal program will be revised later by President Kennedy.

House appropriations and its important subcommittees in the new Administration will be headed by the same veterans who served in the last Congress. Rep. Clarence Cannon (D., Mo.), chairman of the full committee, will retain the chairmanship of the public works subcommittee as before. Military construction will come under the subcommittee headed by Rep. Harry R. Sheppard (D., Calif.).

Voters OK $3 Billion in Bonds

The nation's voters last week trooped to the polls in record numbers and resoundingly said "yes" to bond proposals and amendments that eventually will lead to $3.2 billion worth of construction (see table).

Out of an all-time high of $3.4 billion worth of propositions, the voters approved $3.2 billion worth—a record high approval rate—while rejecting only $200.1 million worth, or only 5.9%. (Total dollar amount of proposals given here are construction only. Not included in the figure are proposals that would authorize bond sales for land acquisition, such as New York State's $75 million and Kentucky's $10 million.)

Included in the $3.4-billion proposal total is the $1.75-billion California water development project, which won the support of California residents by a relatively slim margin (see p. 24). Not included in the over-all total, however, are propositions in Louisiana that would empower state agencies and

Construction Bond Scoreboard

Purpose of Bonds	Passed	Defeated
Waterworks*	$1,785,118,000	$ 195,000
Sewerage	201,522,000	13,335,000
Flood Control	11,162,000	0
Schools	356,198,000	47,085,000
Urban Redevelopment	22,350,000	0
Public Buildings	38,203,000	62,100,000
Institutions	173,065,000	22,250,000
Highways, Roads, Streets	119,830,000	4,500,000
Bridges	0	20,100,000
Recreation, Parks	6,813,000	18,041,000
Transportation (other than roads)	6,101,000	0
Colleges, Universities	250,500,000	12,500,000
Home & Farm Loans	135,000,000	0
Ports, Docks	23,500,000	0
Paper Mill	50,000,000	0
Total	$3,179,362,000	$200,106,000

* For California's Water Plan see p. 24

boards to issue a total of $165 million worth of bonds for a variety of construction projects. The voters in that state were faced with 55 propositions of all types, construction and otherwise. State officials expect to have final tallies this week.

This year's approval rate of 94.08% compares with recent years as follows: 1959, $1.02 billion proposed, 44.3% approved; 1958, $2.10 billion proposed, 68% approved; 1957, $764 million proposed, 81% approved; 1956, $2.7 billion proposed, 90% approved.

Waterworks this year led all other types of construction in dollar volume of proposals, but California provided almost all of the total. Not counting the Golden State's issue, only $35.3 million worth of waterworks proposals were on the ballots. Of this amount, $195,000 was rejected.

The next largest amount of proposals was for schools, other than colleges and universities. As in past years, voters generally looked with favor on school expenditures, this year approving $356.2 million of the $403.3 million placed on the ballots, for an approval rate of 88.3%.

Los Angeles with $153 million worth of school bond proposals was the largest total for an individual community. The voters gave it the nod.

St. Louis registered the single largest rejection of school proposals. The $29.5 million worth on the ballots failed to receive the required two-thirds plurality.

Proposals for college and university buildings fared even better on a percentage basis. Of the $263 million worth of proposals for construction, the electorate approved a total of $250.5 million, or 95.2%. Largest individual issue was $150 million for Illinois state institutions of higher learning.

Sewers and waste treatment and disposal were third in dollar volume with a total of $214.9 million on the ballots. Of this, voters accepted $201.5 million worth for an approval rate of 93.8%. Largest of those approved were $75 million, Kansas City, Mo.; $42.5 million, San Diego; $15 million, Kansas City, Kan.; $12.5 million, San Francisco; and $10.7 million, Omaha.

The rejections were registered in Seattle, $4 million; various Ohio communities, $1.2 million; and $500,000 in Rhode Island towns.

State institutions of all types—hospitals, prisons, reformatories, mental institutions—also rang the bell. Propositions for this type of construction totaled $195.3 million. Voters approved $173.1 million worth, or 88.6% of the total. As was the case in the college and university category, Illinois had the largest single total to be acted upon —$150 million.

Willingness to pay for the roads they ride on was also apparent among the voters. There was a proposition-total for highways, roads and streets of $124.3 million. Of this, the voters approved propositions having a value of $119.9 million, which is an approval rate of 96.4%.

One state, however, had the largest single proposition—Kentucky with $90 million. It was approved.

There was one major proposal involving toll facilities construction. It was a proposition in Rhode Island that would have permitted the state to guarantee a $20-million bond issue for tollroads and bridges. This was rejected (ENR counted this as a separate issue; it is not included in the highways and streets total).

Public buildings at both the state level and the local level rated relatively low in the voters mind. Propositions for this type of construction amounted to $100.3 million. Only $38.2 million worth was approved, for a rate of only 38%. Rejected was $62.1 million worth. In the 1959 general election, voters approved 70% of the $63 million worth on the ballots. In the 1958 general election, however, voters were almost as disenchanted with public buildings as they were this year. They threw out $75.8 million worth of proposals amounting to a rejection rate of 50.8%.

Recreational facilities, including playgrounds and swimming pools, were even more unpopular on a percentage basis, although total volume was much smaller. Such propositions totaled $24.9 million, but only $6.8 million worth was approved, an acceptance rate of only 27.4%.

Among the major types that met with no rejections were Oregon's home and farm loans, $135 million; docks and ports in Portland, Ore., Seattle, and Cleveland, a total of $23.5 million; urban redevelopment in four cities for a total of $22.4 million, and flood control in five cities, $11.2 million.

California Bonds Win—Barely

California's $1.75-billion bond issue for water resource construction squeaked by narrowly last week. The affirmative vote cleared the way for rapid progress on the dam and aqueducts needed to store water in northern California and move it to the south.

According to state Water Resource Director Harvey Banks, construction will start on Oroville Dam in 1962 and on the main aqueduct system in late 1962 or early 1963. First sale of bonds is not expected until 1963 because funds are available to cover design and construction for the next two and a half years.

1. Result Delayed

Outcome of the vote was in doubt until late southern California returns put the measure over nearly 24 hours after the polls closed.

Not counting 200,000 absentee ballots and some additional delayed southern California returns, the proposition passed by a plurality of 139,000 out of more than 5.6 million votes.

Northern water for state's dry south.

As expected, the bill drew heavy support from southern California. The seven largest counties gave it a 769,000 plurality. Greatest winning margin was in San Diego County where the issue lead by 209,000 votes out of nearly 350,000 cast. Biggest number of yes votes came from Los Angeles County where 1.3 million approved the measure and just over a million voted no.

Most northern California counties voted solidly against the issue. It lost by 162,000 votes in Alameda County, 98,000 in Contra Costa County, 64,000 in San Mateo County and 63,000 in San Francisco County. Yuba County, which suffered from disastrous floods in 1955 that Oroville Dam would have prevented, barely passed it.

Some smaller northern California counties that will be directly benefited favored it. Butte County, site of Oroville Dam, gave it a 9,000 vote majority out of 27,000 votes cast.

The favorable vote is considered a

great personal victory for Gov. Edmund G. Brown. He has backed the water plan solidly since his election two years ago. He was prominent in negotiations leading to what may well have been the margin of victory—the eleventh hour signing of a water delivery contract between the state and the Metropolitan Water District of Southern California. MWD support, withheld until the signing, carries heavy weight in southern California.

Northern California opposition to the measure stems from the fact that little direct benefit will result. This is particularly true in the San Francisco Bay area. Some leading newspapers violently opposed the issue, possibly in part because of partisan differences with the Democratic governor.

The AFL-CIO California Labor Federation also opposed the bill, on the grounds that large land owners in the San Joaquin Valley would be major beneficiaries. According to records filed at the office of the California Secretary of State, the Federation contributed $16,831 to fight the issue. Other labor unions favored the proposition. The United Steel Workers in Los Angeles contributed $1,000 and the operating engineers in San Francisco contributed $1,000 to support it.

Large landowners gave expected support. Tejon Ranch Co. contributed $20,000 to the campaign and the Southern Pacific Co. contributed $15,000.

Big contractors also gave financial support. Contributions ranging from $1,000 to $5,000 were made by Johnson, Drake & Piper; Gordon H. Ball; Maco Corp.; Guy F. Atkinson Co.; Kaiser Engineers; United Concrete Pipe Corp.; Griffith Co.; and Morrison-Knudsen. Additional financial backing came from southern California real estate organizations.

II. Next: Construction

Mr. Banks said Oroville Dam will definitely be an early part of the construction program instead of being deferred as recommended by Chas. T. Main, Inc. (ENR Nov. 3, p. 23). "I am not quarreling with the Main report; I think it is a good one," Mr. Banks stated. "But the flood control situation downstream from Oroville on the Feather River overrides everything else. The basis for the Main report is an adequate water supply but we can't overlook the very important need for flood control to prevent a repetition of the killer flood of December 1955."

Before construction begins on Oroville Dam and the aqueducts, design work must be completed, right-of-way must be acquired and more repayment contracts must be negotiated with water users.

In the meantime, the state plans to advance $400,000 to the U. S. Bureau of Reclamation for design of San Luis Dam, which will create a regulating reservoir near Los Banos, Calif., for joint use by the state and the federal agency. "It will save a year in planning and design because there has been no federal appropriation for San Luis," Governor Brown said. "It has already been authorized by the legislature." Appropriations are expected from Congress in 1961.

The 1961 session of the legislature promises to be a hectic one for water bills. MWD will attempt to get legislative changes it couldn't get in negotiations (its contract goes into effect 90 days after the 1961 legislative session adjourns). And legislators from all parts of the state will try to push through bills to gain special advantage to their areas. Such new legislation is possible as long as it does not change the basic intent of the measure voted on.

There is some question as to who will be prominent in executing the water plan. Several of the state water hierarchy have resigned, including Mr. Banks. He will be replaced in January by William E. Warne, a non-engineer career bureaucrat. It is certain, however, that Governor Brown will be a vital factor in the program as long as he is in office.

As far as the engineering is concerned, major decisions have been made but much has to be done in refining the plans. The major problems center on details of Oroville Dam design and the high pump lifts necessary to move the water over the Tehachapi Mountains.

George D. Clyde

John A. Volpe

Hard Hats as Vote-Getters

Hard hats will hang in two governor's mansions as a result of last week's election.

John A. Volpe, president of Associated General Contractors of America, won an impressive victory in Massachusetts. And in Utah, Gov. George D. Clyde, a civil engineer, won reelection by a narrow margin.

Construction issues dominated the campaign in both states.

Mr. Volpe, a Republican, won election despite a huge turnout of Bay State Democrats for John F. Kennedy in the presidential race. During the campaign Mr. Volpe banged away at the scandals, under a Democratic administration, in the State Public Works Department and in the Boston Metropolitan District Commission.

In Utah, Governor Clyde was accused, at least by indirection, of favoring his brother, W. W. Clyde, a contractor, on state highway jobs. This became a central campaign issue.

Governor Clyde won by 20,000 votes, although early polls showed him behind.

Mr. Volpe promised Massachusetts "sound, businesslike administration to resore confidence in the state."

Among his chief concerns, he said, would be a solution to the transportation problem. He favors speeding up the state's highway programs and supports plans for a multimillion-dollar inner belt highway in Boston.

Mr. Volpe endorsed the $90-million urban renewal program under way in Boston, promised to create an agency to control the growth of metropolitan Boston and other metropolitan areas and supported a merit system that is designed to keep talented engineers in state work.

Mr. Volpe says he has instructed his contracting firm, one of the largest in Massachusetts, not to seek state work during his two-year term. He has turned over the operation of John A.

Volpe Construction Co. to general manager Frank Marcucella.

Mr. Volpe has served the state before as Commissioner of Public Works and he served the federal government temporarily as the first Federal Highway Administrator when the Interstate Highway Program was organized. He is a past president of the Society of American Military Engineers.

Construction issues popped up early in the Utah campaign when Democratic candidate William A. Barlocker was said to favor elimination of private road contracting and bidding in the state. Mr. Barlocker denied proposing any such thing; he said he intended only to eliminate waste in contracting.

The Barlocker forces then unleashed their charge of favoritism against Governor Clyde. Ted Jacobsen, an executive of Jacobsen Construction Co., took to newspapers and TV in defense of the Clyde administration, asserting that Mr. Clyde's brother won more contracts from the preceding administration of J. Bracken Lee. Most of the Utah construction industry sided with Mr. Clyde.

This issue dominated the final weeks of the campaign, with both sides pouring in statistics, percentages and other material to the considerable confusion of the public. That the issue eventually boomeranged in Mr. Clyde's favor was indicated by polls, which earlier in the campaign pointed to a Barlocker victory.

Before becoming governor, Mr. Clyde had served the state as director of the Utah Power & Water Board. He has been a leader in the struggle for development of the Upper Colorado River Project.

Governor Clyde is an engineer both by education (MS in civil engineering from the University of Southern California) and by family tradition. Three of his brothers are engineers, his three sons are engineers and his brothers' sons, seven of them in all, are engineers—a total of 13 Clydes in civil and electrical engineering.

Here's how other construction-men-turned-politician fared in their bids for votes:

• **In California,** construction candidates tripped badly—two won election to the state Senate, but six failed in tries for the state House of Representatives.

The winners: Sen. John F. McCarthy (R.), general manager and vice president of Robert McCarthy Co., general contractors of San Rafael; and Samuel R. Geddes (D.) of Napa, president of Geddes & Smith, Inc.

The losers: John P. Guttleben (R.), Alameda contractor; Jack L. Kennon (D.) of Santa Clara, a civil engineer for Lockheed Aircraft Corp.'s Missile and Space Division; Jack D. Collier (R.), Bakersfield homebuilder; Travis Manning (R.) El Monte city engineer; Robert D. Gulliver (R.), Gardena contractor; Phil Dreyer (D.), Colton homebuilder.

• **In Colorado,** homebuilder T. W. Anderson (R.) polled the biggest vote of the four representatives elected by Arapahoe county to the state House.

• **In Illinois,** three construction men and one engineer won seats in the state House of Representatives; one contractor lost his race for the state Senate.

The winners: Rep. Elmer Conti, (R.), Maywood contractor; Rep. Charles Willet (R.), Dixon consulting engineer; James Carrigan (D.), Peoria electrical contractor; Charles Clabaugh (R.), Champaign contractor.

The loser: Roman Domas (D.), a plumbing contractor.

• **In Maine,** two Republican contractors won reelection to the state House of Representatives but a Democratic contractor, elected two years ago, fell by the wayside as the state returned to its normally Republican voting patterns. The winners are Robert E. Moore, Casco plastering contractor, and Rep. Philip Dunn, Poland paving contractor. The loser is Rep. Carlton Day Reed, Woolwich highway contractor.

• **In Minnesota,** contractor G. J. Van De Riet (R.) of Fairmont won reelection to the state House of Representatives.

• **In Nevada,** George W. Malone, a Reno civil engineer, lost his bid to return to Washington. Mr. Malone, a 70-year-old Republican served as U. S. Senator for two terms, before losing to Howard Cannon in 1958. This year, he ran for the U. S. House of Representatives.

• **In Pennsylvania,** Rep. Walter M. Mumma (R.), a Harrisburg residential contractor, won reelection to the U. S. House of Representatives, three other contractors and two engineers were elected to the state House of Representatives, one contractor lost his race for the state House and an industrial engineer missed in a try for a seat in the state Senate.

The winners: Rep. Albert E. Strausser (R.), Berwick contractor; Rep. Gus P. Verona (D.), Penn Argyl contractor; Rep. Charles D. Heavey (D.), Philadelphia contractor; C. Timothy Slack (R.), Coatsville civil engineer; Rep. Nicholas Kornick (D.), Uniontown safety engineer.

The losers: Brandt L. Cook (D.), New Cumberland contractor, and Edmund J. McDonald (R.), Irwin, an industrial engineer.

• **In Nebraska,** two contractors, both Democrats, were buried by the Republican tide in tries for state office. Norman Otto, Kearney contractor, ran for lieutenant governor and Robert A. Dixon, Omaha contractor, ran for secretary of state.

• **In Ohio,** the construction candidates broke even: A homebuilder and an estimator won spots in the state House of Representatives; an engineer and a contractor lost.

The winners: Rep. James J. McGettrick (D.), former president of Mayview Building Co., homebuilders; and Michael J. Crosser (D.), an estimator for the contracting firm of Schirmer-Peterson.

The losers: Francis M. O'Donnell, (R.), an engineer; Ray B. Jablonski (D.), a roofing and tinning contractor.

• **In Washington,** Rep. Daniel J. Evans (R)., Seattle consulting engineer, was reelected to the state House.

What Was Labor's Role?

Glancing out of his office window in January, AFL-CIO President George Meany can look contentedly across Lafayette Square to a White House that is considered friendly to the aims and purposes of organized labor.

How much of the credit for the Kennedy victory is due to the political efforts of the nation's unions is anyone's guess. The mixed results of the election and the multiplicity of factors involved neatly lend themselves to contending claims and prove little except to dispell again the myth of a "labor" vote.

Without the AFL-CIO's widely implemented endorsement of Senator Kennedy, the President-elect may well have lost his slight edge on the popular vote and failed to score the big industrial center pluralities that gave him his electoral lead.

In its endorsement of congressional candidates, organized labor didn't score as well as in the past. The AFL-CIO was successful in only 64% of its endorsements, compared to 77% in 1958. One of its bigger victories was the election of former Delaware Gov. J. Caleb Boggs to the Senate. Mr. Boggs was one of the few top Republicans endorsed by labor. He was the lone Republican to win in the state.

I. Teamster Flop

The teamsters' election successes were even more undramatic. The survival of nearly all of the union's "enemies" at the national level indicates that James Hoffa's political bark is worse then his bite.

At the state level, observers gen-

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erally see little for labor to crow about with much assurance or conviction. One notable exception in a rather uneven performance was the election in Indiana of a governor who is pledged to support repeal of the state's right-to-work law. He is Matthew E. Welsh (D.), who won in the face of a 230,000 state majority piled up by Richard Nixon.

Looking back over the spotty, uneven and often enigmatic picture drawn November 8, labor's political success appears to lie more outside the ballot box than in it. The union movement did pour millions of dollars into the campaign, and it was successful in two of its fundamental drives—getting voters to register and getting them out to vote. But, as Mr. Meany has often said, it did not control the votes that were finally cast.

II. Unions Divided

Scattered indications from across the country show that labor leaders could have expected little more.

The labor movement itself was divided and diversified from the start. The AFL-CIO whose political arm is the Committee on Political Education (COPE), endorsed Senator Kennedy, who was bitterly opposed at the international level by the teamsters union. But the teamsters, at the same time, did not endorse the Nixon ticket.

The United Mine Workers, an outspoken critic of the Kennedy labor reform legislation, made no endorsement, nor did the Mine, Mill and Smelter Workers. Twenty-four AFL-CIO unions, including boilermakers, bricklayers, roofers and iron workers, made their own endorsements—all for Mr. Kennedy.

In addition to the "political education" efforts of COPE, the AFL-CIO conducted its $500,000 voter registration drive as a separate operation out of its Washington, D. C., office. And beyond this two-pronged political effort of the federation, many of the international unions conducted their own political campaigns. Most of these, however, were in step with COPE. Among the unions in this group were two from the building trades—sheet metal workers and electrical workers.

However formidable this union array may have looked on paper, its effectiveness was considerably dissipated at the local level.

Financial management itself was a problem, due in part to the diversification of effort and a rather widespread lack of enthusiasm among union members. COPE, which hopes each year to get $1.00 from each of the 13 million AFL-CIO members, collected just over half a million dollars and went $175,000 into the red.

The unions also had difficulty holding their lines. In many areas the teamster opposition to Mr. Kennedy was merely passive. The local in San Francisco actually endorsed the Kennedy ticket, and in Minnesota some of the teamsters individually worked for COPE. In Louisville, Ky., a statewide movement for the Nixon ticket was started by a group of AFL-CIO union members.

The same kind of union individualism showed up in California, where COPE had opposed the $1.75-billion water bond issue, which carried by a small margin (see p. 24). The teamsters fought for the bonds and were joined by some AFL-CIO unions, including the steelworkers in Los Angeles and the operating engineers in San Francisco. An AFL-CIO official said it was impossible to hold some of the building trades in line because of their interest in the construction jobs that would flow from the bond issue.

Looking at the Oregon election results, an observer concludes: "The voters were highly selective and, on balance, COPE influence appears minor."

This, with few exceptions, appears to be substantially true across the nation, according to reports such as these:

- **Nevada**—"Union candidates who have done well in the past were defeated in this election."
- **Connecticut**—"The union people worked hard as usual for the Democrats but kept in the background."
- **Nebraska**—"Candidates endorsed by COPE turned in uneven performances. But labor is credited with doing an effective job in getting people registered."
- **Maryland**—"COPE's men worked effectively but hardly were the deciding factor."
- **Washington**—"COPE helped reelect a Democratic state administration and saw the election of about two-thirds of its candidates to the state legislature."
- **Michigan**—"On the whole, teamsters and building trades had little or no effect on the elections."
- **Texas** — "Democratic slate, supported by COPE, came out ahead all the way. But Texas is not as completely dominated by labor as it might appear. COPE and contractors are often working for the same team."
- **California**—"AFL-CIO registration efforts turned out 180,000 new registered voters and they went heavy for Kennedy. Minority groups, such as NAACP and Community Improvement Committee in Los Angeles, also helped elect Kennedy."
- **Ohio**—"Although the Cleveland AFL-CIO scored an 81.5% record in its endorsements of candidates and issues, COPE took a licking on a statewide basis."

More Engineers Admit 'Payola'

The number of engineers involved in the Florida highway payoff scandal has increased from nine to 14, a second contractor has been involved and a congressional subcommittee has scheduled hearings on the situation.

Last week five more engineers of the Florida State Road Department admitted accepting payoffs. Four of them said they had received $25 a week from Cone Brothers Contracting Co., of Tampa, the same company named by nine other engineers as the source of weekly contributions (ENR Oct. 27, p. 26).

A fifth department employee said he got money from L & A Contracting Co., of Hattiesburg, Miss.

The House Subcommittee on Federal Aid to Highways will open hearings on the Florida road scandals December 5. Walter May, chief counsel for the subcommittee, said the House hearings will bring out details of the situation not covered by the investigations of the Florida legislative committee.

The Florida legislative committee is also investigating allegations that State Road Board member Albert L. Rogero had an interest in land companies selling rights-of-way to the state.

The Florida Engineering Society has entered the case by launching an investigation "to determine if the engineers have acted in a manner contrary to good professional ethics."

Road Board chairman William Killian announced that crews checking the work done by Cone Brothers would need at least six months to complete the job. But he said he was confident that the suspension of federal-aid payments to the company on work under way would be lifted before that time.

The Road Board held up award of a $941,895 contract for 14 Interstate bridges on which L & A Contracting Co. was low bidder. The officers of L & A disclaimed any knowledge of a payoff to an engineer, suggesting that one of their senior employees was responsible.

Cone Brothers will appear before the Road Board November 21 to appeal an order disqualifying them from bidding. In recent years the company has won Florida road contracts with a total value of $28.5 million.

The five Road Department employees involved in payoff last week were Jack Black, a resident engineer; Gordon Walker, a project engineer; Dempsey Whidden, an inspector; D. R. Squires, and Cecil Landers.

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MORETRENCH EQUIPMENT PREDRAINS WORLD'S LARGEST DRY DOCK

When the U. S. Navy undertook to build the world's largest dry dock, a formidable foundation problem faced the engineers. The site was partially on "made" land requiring 600,000 cubic yards of dredging and 1,300,000 cubic yards of fill.

A fully-relieved type of dock was designed, in the construction of which an elaborate Moretrench drainage system to relieve the groundwater pressures was a key element.

The cross-sectional sketch at the right shows the general pumping plan. A system of Moretrench submersible-type deep well pumps augmented with a perimeter stage of Moretrench Wellpoints gave the contractor a dry, unobstructed working area about 1200 feet long and 220 feet wide, 65.2 feet below mean high water.

Additional wellpoints are being used to dewater the pump well area to a total depth of 84.3 feet below mean high water.

Photo on the left shows the cofferdam being constructed; photo on the right shows the excavation being bottomed out after predrainage, with drainage course material being placed in the foreground.

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Dry Dock No. 6
Carrier Repair Site
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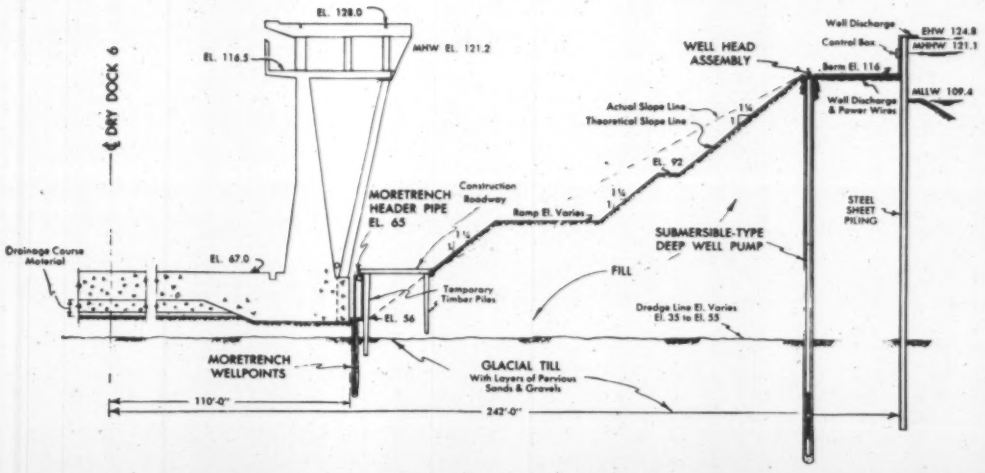
Bremerton, Washington

Architect-Engineers: Moran, Proctor, Mueser & Rutledge, New York — Carey & Kramer, Seattle, Washington

Contractor: Manson-Jones-Perini-Osberg
Bremerton, Washington

Pumping Contractor:
American Dewatering Corporation,
Rockaway, N. J.



This project was under the supervision of the District Public Works Office, Thirteenth Naval District, Seattle.

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Around the World . . .

• **Design competition**—An annual award for architectural students with a top prize of $5,000—split between winner and his school—has been set up by Reynolds Metals Co. The American Institute of Architects will administer the contest. Deadline for the first year contest: Feb. 1, 1961.

• **Expressway rejuvenation** – The Pennsylvania Department of Highways engaged Grof & Meyers, Inc., Harrisburg consultants, to find a cure for the rapid aging of the Schuylkill Expressway. The two-year-old highway is carrying more traffic now than was predicted for it for 1970 (ENR Nov. 3, p. 15). Additional lanes, median barrier, usable shoulders and acceleration and deceleration lanes will be considered.

• **Glaring situation**—A 3-ft aluminum mesh fence will top the median guard rail along 6½ miles of highway near Oklahoma City. The State Highway Department will test the mesh for ability to deflect headlight glare. The department says it will also keep pedestrians from crossing the road.

• **Gotham renewal**—The federal government has approved two major urban renewal projects in New York City: a wholesale produce market in the Bronx to replace the congested Washington · in lower Manhattan (Dec. 1, 1959, p. 29), and the 2,000-unit Brooklyn Bridge Southwest housing development. Federal funds for planning, land acquisition and relocation will exceed $24 million.

• **Welding competition**—A competition for design of arc-welded structures and machines, with $25,000 in total cash awards, has been announced by the James F. Lincoln Arc Welding Foundation, 22801 St. Clair, Cleveland 17, Ohio.

• **Corps sets dam design**—The proposed Bruces Eddy Dam on the Clearwater River in northern Idaho will be a 670-ft-high concrete gravity structure. So says Walla Walla District Office, Corps of Engineers, now planning the multipurpose project tentatively scheduled for a 1962 start.

• **Big garage**—The Austin Motor Co. is building a parking garage of 3,300-car capacity near Birmingham, England. The nine-story structure will measure 210x380 ft in plan.

• **Mormons plan expansion**—A building program sponsored by the Mormon Church in downtown Salt Lake City may cost $50 million. Major structures planned for the church's 10-acre "administrative square" will include a 38-story office tower, a 17-story addition to the Utah Hotel, an archives building and underground parking garages for 2,000 cars.

• **Biggest to be bigger**—The California Highway Commission has adopted a record $633.5-million budget for fiscal 1962, up 11% from fiscal 1961. If approved, construction contracts and engineering will get $348 million. Budgeted funds can be spent after January 1.

• **Two years sooner**—Construction of Baltimore's $200-million East-West Expressway will start in 1962, two years ahead of original starting date, according to William L. Chilicote, deputy director of public works. Federal funds for the Interstate project are expected to become available in that year.

• **High-priced highway**—Illinois Gov. William Stratton last week opened Chicago's Northwest Expressway, which connects the central business district with O'Hare International Airport. The 16-mile route cost $237.8 million.

• **Airport advice**—Seelye, Stevenson, Value & Knecht, New York City consultants, recommended $11.4 million worth of improvements for the Rochester-Monroe County (N. Y.) Airport to county officials. The work would include a $7.9-million runway and expansion of the terminal building.

• **Retreat to the cities**—Homebuilders should focus their attention on the cities now that the suburban market has grown slimmer, says Melvin H. Baker, chairman of National Gypsum Co. He doesn't expect a sharp rise in suburban demand until at least 1963.

• **Guessing in Guatemala**—The U. S. is reported to be building three air bases in Guatemala, all of them capable of handling the largest jets. One in Peten Province is said to be under construction. The government of Guatemala and the U. S. Embassy in Guatemala City say only "no comment."

Southern Code Group Makes Steel Imports Tough

The Southern Building Code Congress adopted a resolution at its annual research conference in Birmingham, Ala., that will make importation of structural steel and reinforcing bars more difficult in 900 southern communities.

The resolution calls on all members of the SBCC to enforce code provisions requiring steel to conform to specifications of the American Society for Testing Materials.

"We don't say foreign steel cannot be used," says M. L. Clement, SBCC executive director, Birmingham. "What we say is that it must be tested and certified by an approved American laboratory.

"Most, if not all foreign steel has a high carbon content, much higher than the maximum of 0.28% permitted by the code. So, in effect, imported structural steel shapes and reinforcing bars and rods are banned. There may be some imported steel that meets our requirements but none that we have had tested has done so."

The SBCC conference heard J. T. Waggoner, Commissioner of Public Improvements, Birmingham, state that steel mills in the South are operating at 55% of capacity, leaving several thousand employees in the Birmingham area idle. Imported steel, he said, was an important factor.

The Birmingham City Commission, he said, has publicly announced that all steel used by the city will come from domestic sources. This was done to spur local employment, get superior quality steel, obtain quick delivery and secure technical advice in a hurry when needed.

Nevertheless, Mr. Clement states that the SBCC action is strictly a safety measure: "Absolutely no pressure was brought to bear by any steel mill or anyone else." The decision to enforce the steel specifications resulted from several structural failures, including a school in Bessemer, Ala., a Birmingham shopping center and a school in Orlando, Fla. Some of the structures that failed were reported to have been built with some foreign steel that had not been certified as meeting ASTM specs by an approved American laboratory.

Mr. Clement says that certificates issued by some foreign mills are "not worth the paper they are written on." Several mills pool shipments on one ship, and with no marks on the steel it would be impossible to determine what steel has been certificated, he contends.

"If importers want us to use their steel, they must follow requirements and have it tested in American laboratories," Mr. Clement concludes.

Lasting protection can now be added to exciting new roof designs; roofs whose shapes and contours give dramatic expression to the architect's creative imagination. Properly compounded neoprene and HYPALON synthetic rubbers have made this possible. • These versatile elastic roofing materials are providing workable, down-to-earth solutions to problems that have long restricted modern roof design. For example, they're easily applied over roof decks of any contour; cure to a tough, permanent, weathertight surface with excellent resistance to weather, sunlight, ozone, abrasion, flame, oils and chemicals. • In addition, they retain their elasticity despite continual exposure . . . expand and contract with the roof deck . . . require no plasticizers . . . neither soften with heat nor embrittle with cold. Used together, neoprene provides lower-cost film build-up; HYPALON, a wide choice of stable, attractive topcoat colors. Separately or in combination, resilient roof coatings made with neoprene and HYPALON assure years of maintenance-free service. • Du Pont produces only the synthetic rubbers, neoprene and HYPALON, from which these protective roof coatings are made. We'd like to send you a list of suppliers, plus our booklet, "Colorful, Durable Roof Coatings Made with Neoprene and HYPALON."

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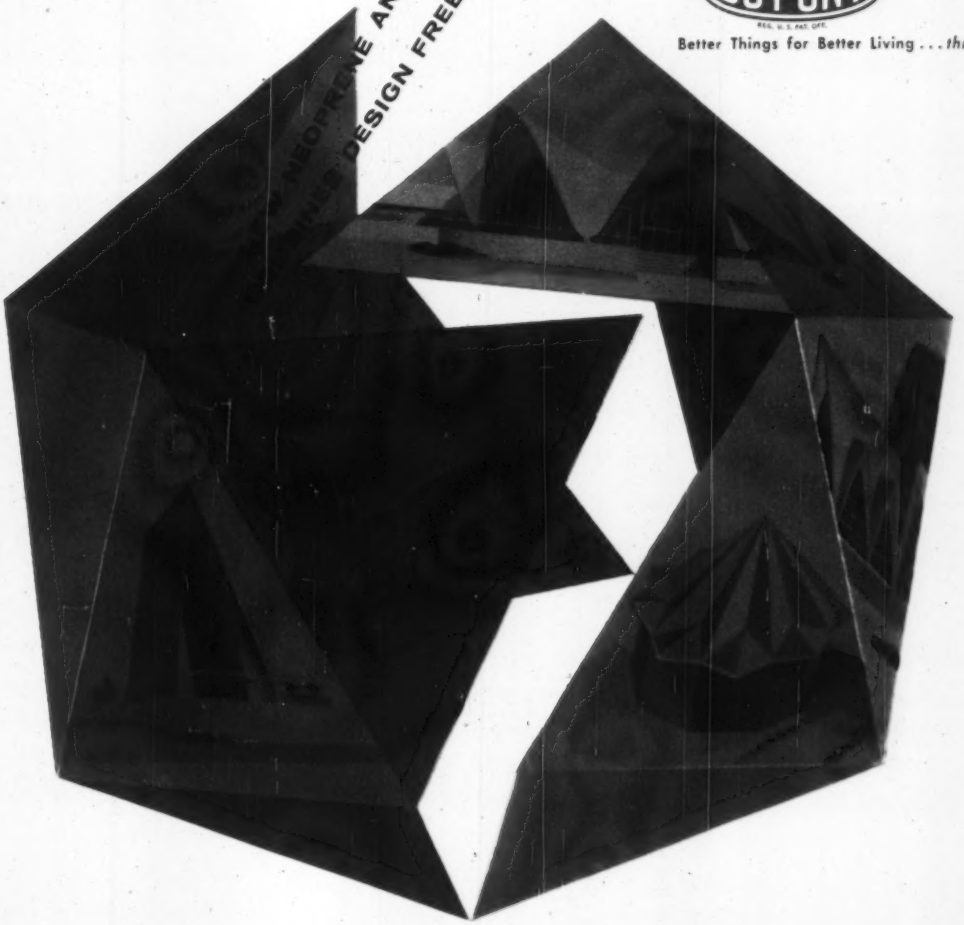
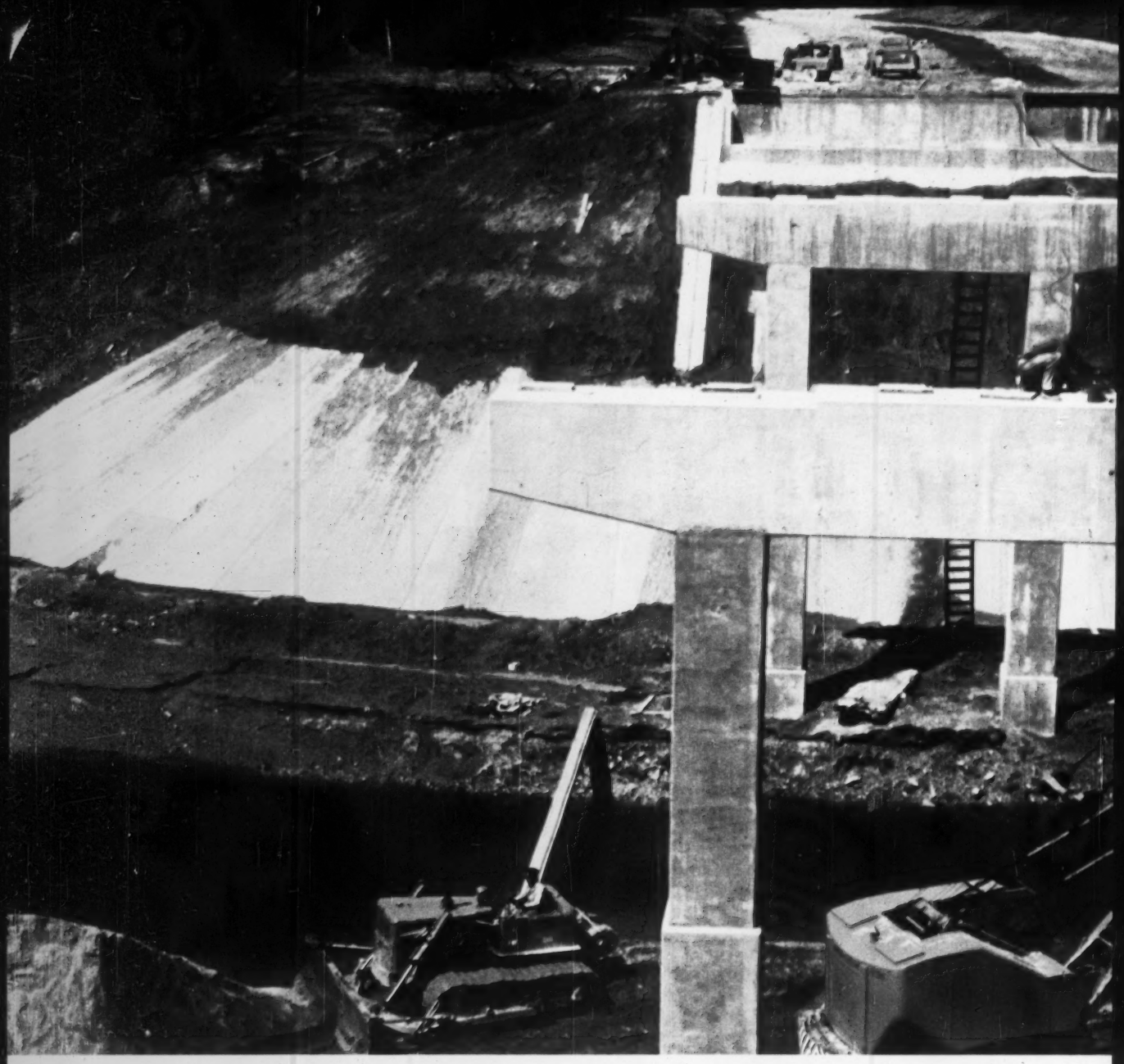




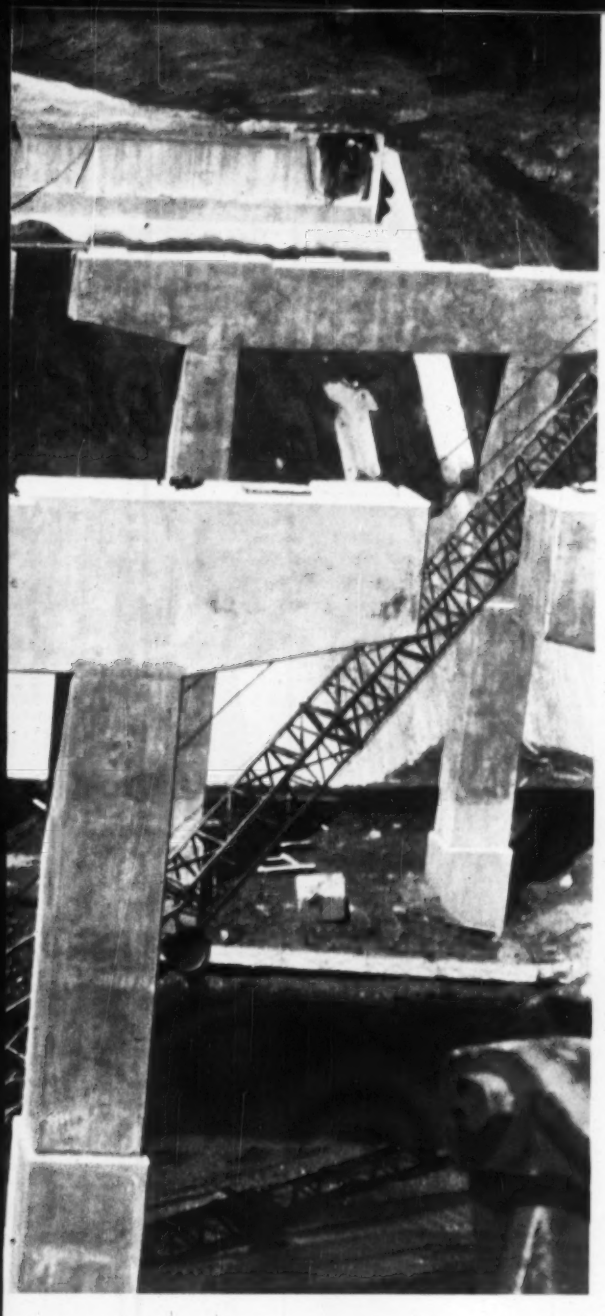
Case Construction erects 3 bridges on a fast

GULF MAKES THINGS

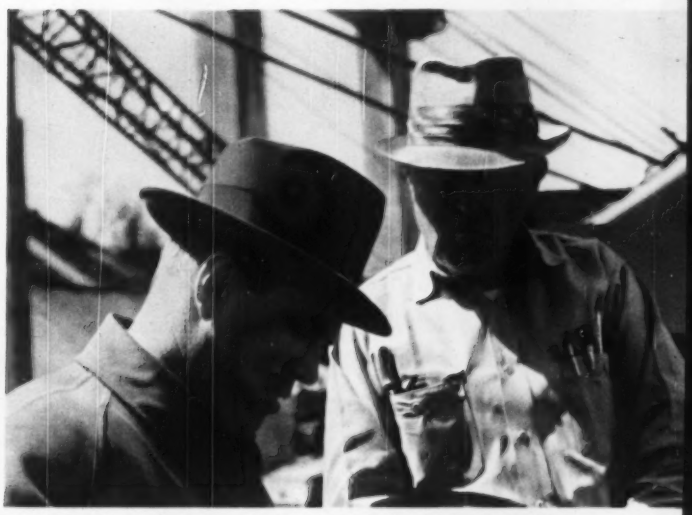
Being a bridge building specialist requires many talents. To keep three bridge jobs right on schedule, Case Construction Corporation, Mt. Airy, Maryland, combines the ability to move dirt, pave and erect steel with a knack of getting the most out of equipment. Two of the bridges are on the Circumferential highway ringing Washington, D.C., the other spans the Patuxent River on the relocation of Maryland Route 216.

In building these bridges, Case battled a stingy deadline, cramped working space and winter weather. The Patuxent River bridge, begun in November, 1959, involved 28 feet of excavation on one side of the river; 15 feet on the other; setting 45-foot 12 inch H-beams; pile driving foundations for abutments; and pouring 3,000 yards of concrete. Multiply this kind of activity by three, and equipment had to deliver top performance.

And Case Construction obtained this kind of performance with just four Gulf products: Gulf Diesel fuel, Good Gulf® gasoline, Gulflube® Motor Oil H.D., and Gulflex® A chassis lubricant.



On the move. Three bridge jobs at once requires top performance from equipment. Case Construction kept equipment rolling with Gulf products.



Roy Young, right, Project Superintendent, and G. F. Pope, Gulf Sales Engineer. Gulf products and prompt Gulf deliveries helped keep Case Construction on schedule.

The Patuxent River bridge. A relocation of Maryland Route 216 which will feed the Circumferential Highway ringing Washington, D.C.

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Commented Roy Young, Project Superintendent, "Our equipment is mighty expensive, and proper care makes our investment pay off. Gulf products do the job. Gulf's prompt delivery and helpful engineering service also contributed to meeting tight deadlines."

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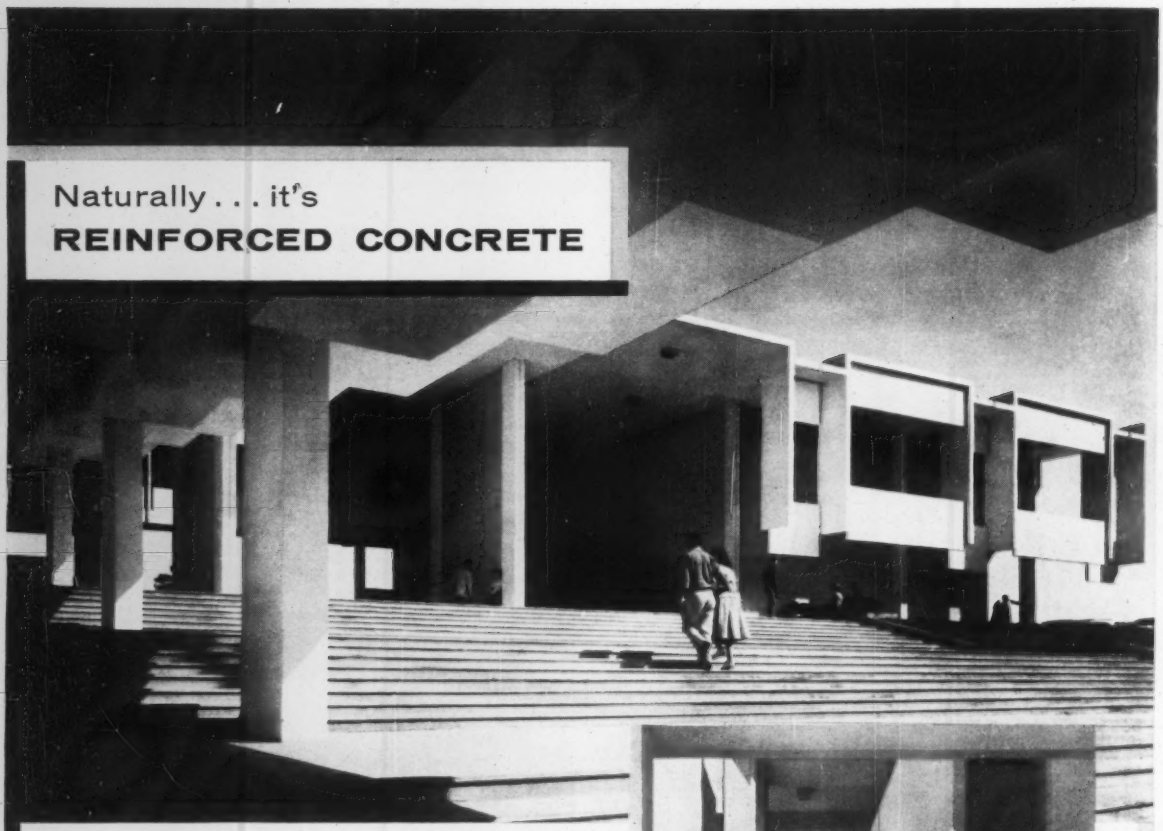

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Structural Engineer: Sidney Barker, Tampa, Florida
Contractor: Coe Construction Co., Charlotte, N. C.
Photographs by Ezra Stoller, Rye, New York

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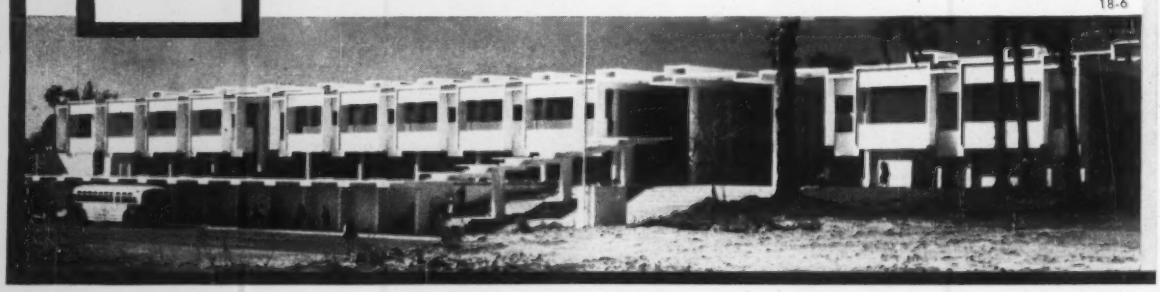
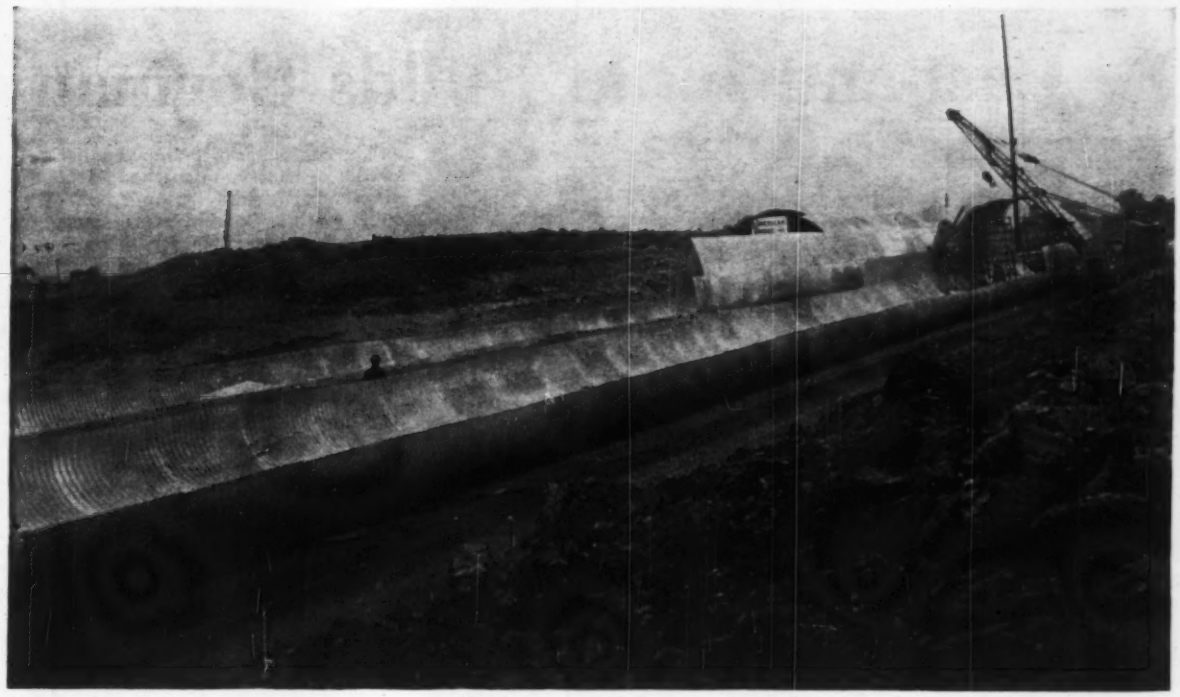




Crews bolt corrugated steel sections together to fabricate twin tubes, as . . .

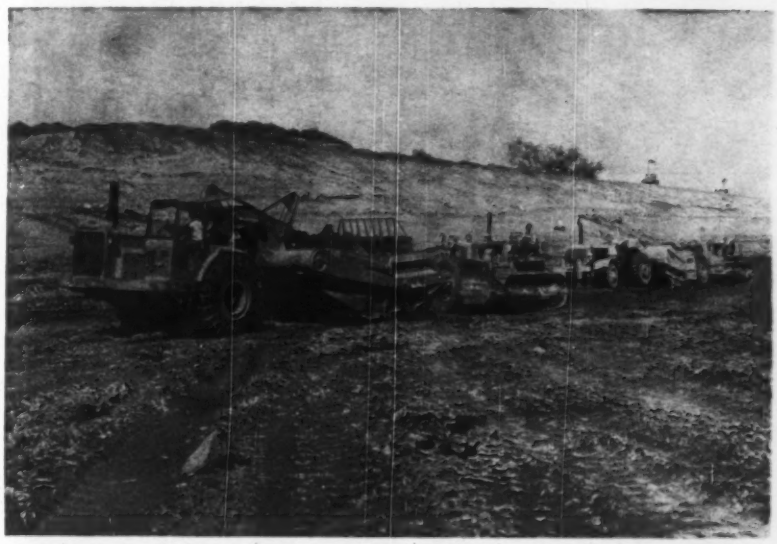
Big Arch Culverts Form Underpass

Twin multi-plate arches installed as a county road underpass on a section of interstate highway in central Illinois are reported to be the largest ever built. Each of the corrugated steel arches is 20 ft 7 in. at the base and 16 ft 10 in. high.

Despite an almost perfect balance of cut and fill over the length of the 5.8-mile, $4-million project, the prime contractor is wasting 1 million cu yd of excavation at one end and borrowing a similar amount at the other.

American Bridge Division of U. S. Steel Corp. built the two arches under subcontract. Each of them will accommodate one lane of traffic. Fourteen inches of surfacing material with a 1-in. crown will be placed to provide 14 ft of vertical clearance through each 334-ft-long structure.

Topography was the key to the decision of S. J. Groves & Sons' superintendent E. E. Shelden to borrow and waste material. This section of Interstate 74 begins in the steep bluffs that overlook the Illinois River near East Peoria and ends on flat farmland at Morton. In between are rolling hills, a busy state highway and a railroad. Largest cut runs 2,000 ft to a maximum depth of 90 ft and requires about 1 million cu yd of excavation. In the same area is the largest single fill, which requires 480,000 cu yd of material placed to a maximum depth of 80 ft.

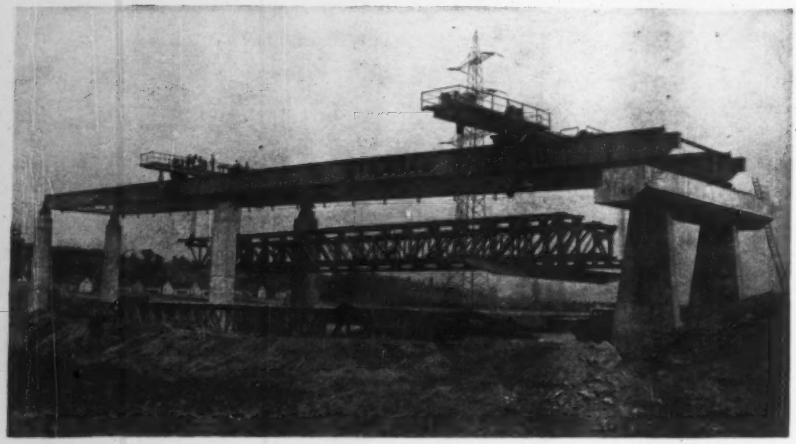


Crawlers push load scrapers in 1 million cu yd borrow pit.

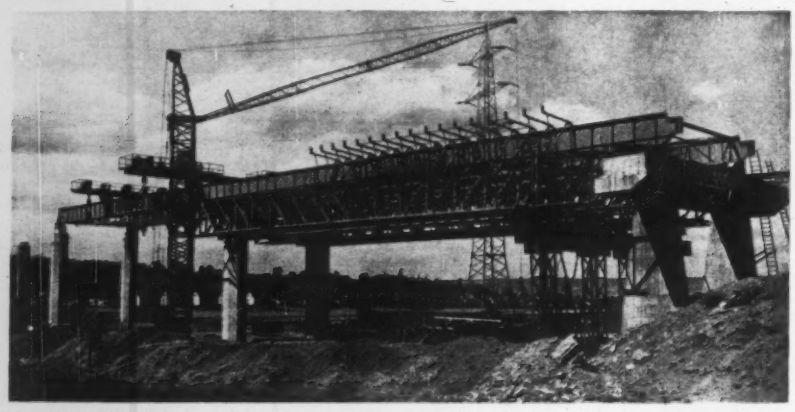
Facing a haul of four miles for some fill areas as well as highway and railroad traffic problems, Groves bought a strategically located 21-acre plot from which nearly all the borrow can be obtained. Shelden estimates that purchase of the borrow area and consequent shorter haul distance will result in savings of about 10 cents per cu yd.

Ground water created some problems for the contractor, principally in drying wet soils. Discs were used to aerate and dry the glacial till to optimum moisture content for compaction.

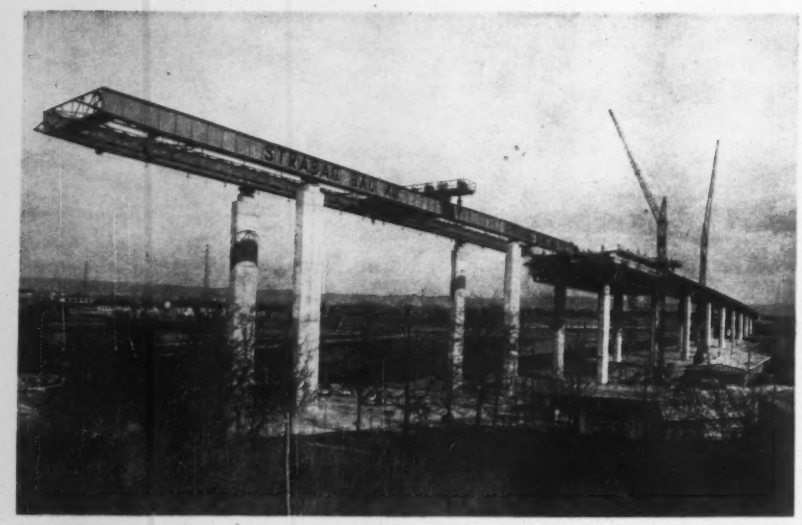
Cast-and-Jump Builds German



TRAVELING CRANES hoist interior truss assemblies into place. Welded girders of traveler rest on east abutment and adjacent piers.



TOWER CRANE erects steel forms on four truss assemblies. Bridge is prestressed longitudinally and transversely by the Swiss BBRV system.



TRAVELER, 270 ft long, rests on rollers on adjacent piers while contractor casts and stresses concrete in a single span (background).

The contractor used a novel variation of the cast-and-jump method to build an elevated highway at Andernach, 20 miles south of Bonn in West Germany. The bridge has a total length of about 1,670 ft, with 13 continuous spans of concrete prestressed both longitudinally and transversely.

It is an important link in a north-south arterial highway passing through the industrial heart of West Germany. Between Andernach and Weissenthurm, the new route crosses a wide, shallow valley. Designers chose an elevated structure instead of an embankment primarily because of the presence of valuable deposits of pumice in the valley top soil.

Twelve pairs of hollow concrete piers and two abutments support the 59-ft-wide deck. Individual spans are about 128.5 ft long. At the east abutment, the deck is 44 ft above the valley floor; a grade of about 3% increases this height to about 81 ft at the ninth pair of piers.

Piers are octagonal in cross section, about 6 ft wide at right angles to the centerline of the bridge and about 8 ft, 9 in. wide parallel to the centerline. Wall thickness varies from 7¾ to 11¾ in. They are spaced about 23 ft, 6 in. c-c. The contractor (Strabag of Cologne) built the piers by the use of slip forms; on future projects, precast sections probably will be used.

The eastern nine pairs of piers rest on spread footings on a firm layer of sand and gravel beneath a 20-ft layer of pumice. Franki piles rated at 160 tons each support the other six piers.

Each of the 13 continuous spans comprises two box girders of prestressed concrete with an integral deck slab that cantilevers out beyond the girder on each side. Girders are about 6 ft, 10 in. deep. Designers provided fixed bearings for the superstructure on top of the two center pairs of piers; the remaining piers have roller-type bearings.

The superstructure is prestressed both ways by use of the Swiss BBRV system. Longitudinally, each box girder is stressed by six 116-ton cables; two more cables of the same capacity are provided over the piers.

Strabag engineers designed four separate steel truss assemblies to carry steel forms for one complete span. After concrete had been placed, allowed to set, and prestressed, the trusses and forms were moved to the next span by a traveler comprising two welded plate girders 270 ft long, which were supported by rollers mounted on the tops of the piers. Cross members and lateral

Bridge

bracing connected the two girders. In placing the first span, two cantilevered traveling cranes with movable hoist blocks at each end rolled along the tops of the traveler girders.

The contractor first built the east abutment and the adjacent three pairs of piers. He then erected the traveler, working on the approach fill and winching the traveler forward by hand to rest on rollers on top of the first and second sets of piers and on the abutment. Hoists of the traveling cranes were used to install the four truss assemblies in the first bridge span. Length of the trusses and the forms that they carry is about 20 ft more than the individual bridge spans. Each of the truss assemblies is supported by hydraulic jacks resting on the pier heads. A bearing block on the lower chord of each truss assembly rests against the side of the pier when the truss is in position for concrete forming. Steel forms for the bridge girders and deck are fastened to the truss assemblies.

With the forms in place, workmen moved the traveler forward and out of the way; the traveler was then supported by the second and third pairs of piers, cantilevering at each end. The contractor placed the longitudinal and transverse prestressing cables. Concreting began at the 20-ft cantilever end of the forms, continued in the main span. Concrete was cured and stressed.

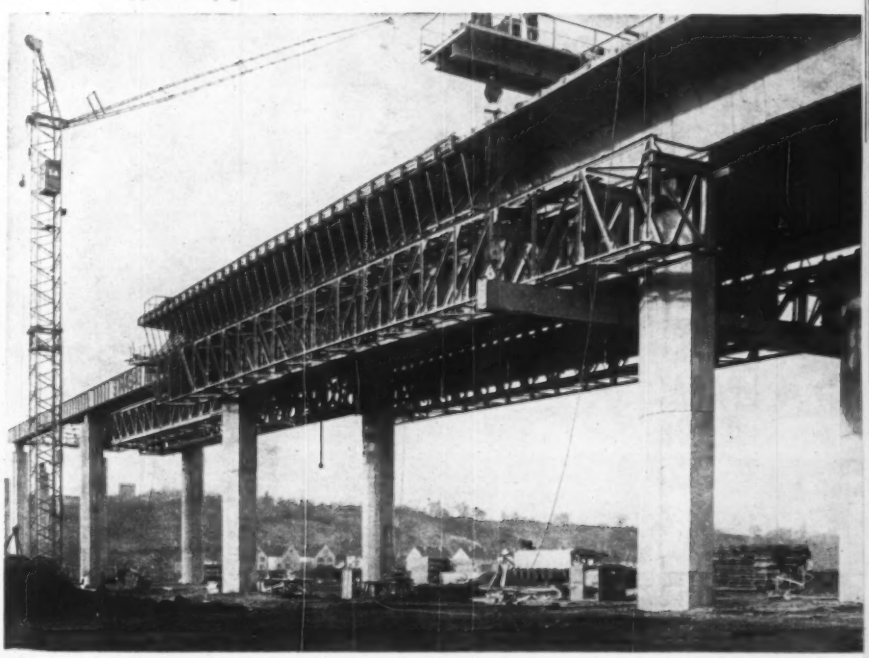
Next step was to winch the traveler back toward the east abutment, until it butted against the face of the cantilever end of the completed span. Workmen actuated a fine control device acting on synchronized hydraulic jacks on each pier to move the truss assemblies and forms down and away from the concrete. Interior form sections were hinged so that they could be unbolted from the interior truss assemblies and flapped downward to hang against the outer trusses.

Next step was to move the trusses and forms forward to the next span by using the two traveling cranes. The forward crane rolled on the tops of the traveler girders; the rear crane traveled on tracks laid on the completed deck.

To move the interior trusses, workmen connected the front crane hoists to the forward ends of the assemblies. The rear crane utilized a transverse beam passing beneath the rear ends of the trusses and connected to the crane hoist at each end. Working together, the two cranes pulled the interior trusses forward.

After the interior trusses had been positioned, Strabag workers moved the two cranes backward, made necessary

TRAVELING CRANES pull interior truss assemblies into position for casting next span. Trusses are supported by pier heads.



BEAM SUSPENDED from hoist blocks of rear traveling crane supports exterior trusses, as front traveling crane pulls trusses forward during "jump" phase.

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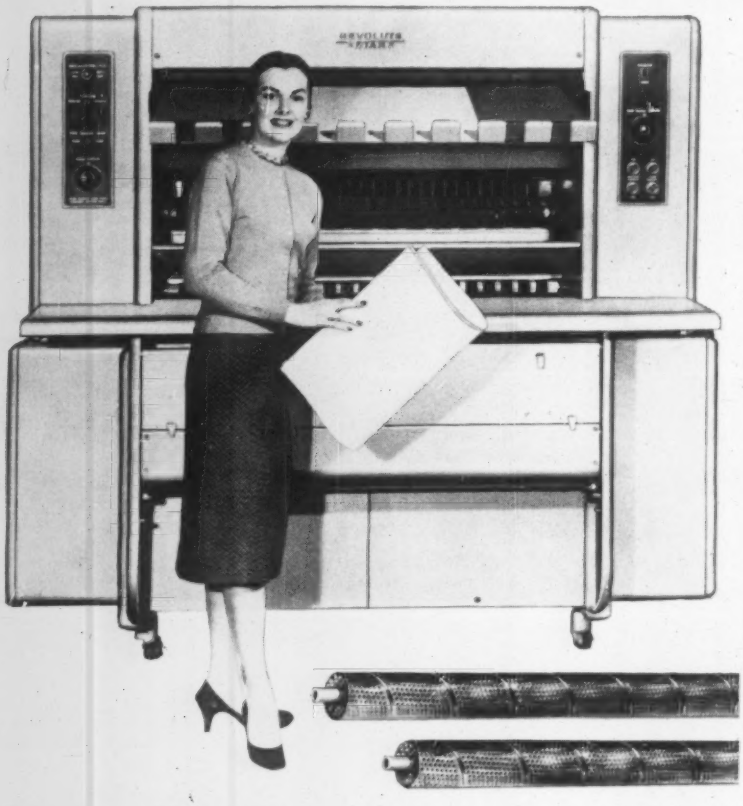

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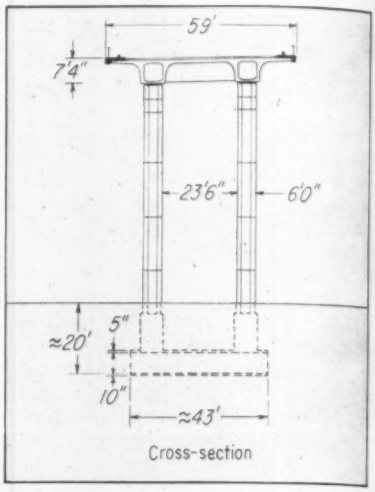

ANDERNACH BRIDGE rests on twin hollow cylindrical piers, has twin box girders with integral deck.

connections, and pulled the outside truss assemblies forward to the new span. Steel forms were bolted in place, and preparations were made for casting the next span. Control valves on the synchronized hydraulic jacks permitted the forms to be raised or lowered in increments of a fraction of an inch. During placing of the concrete, workmen could take up any deformation of the forms to obtain perfect alignment between the finished section and the new span.

Strabag repeated the basic cast-and-jump process for each span. On the average, the contractor completed a single cycle every two weeks, or about 257 ft of box girders and deck per month.

On the Andernach bridge, workmen oiled the steel forms in the conventional manner before placing concrete. This procedure gave a dirty and somewhat rough appearance to the finished structure. On future projects, Strabag plans to use a plastic-coated steel sheet (Platal) developed for its engineers by the Hoesch rolling mills in cooperation with the Huels Chemical Works.

Principal advantage claimed for the construction method is the elimination of falsework. Strabag also claims an appreciable cost saving where spans are repetitive and tall piers are used. Economy is said to be greatest when spans are between 80 and 100 ft. Strabag engineers believe single precast hollow piers with cantilevered top sections would enhance the appearance of the structure and prove economical in built-up areas where space is limited.

Gerd Lohmer was the architect for the Andernach bridge, which was built for the Highways Department of the Rhineland-Palatinate State Authority. The steel traveler and truss assemblies were built for Strabag by Kloeckner-Humboldt-Deutz of Cologne.

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November 30th will mark the end of test traffic in the $27,000,000 pavement test sponsored by the American Association of State Highway Officials (AASHO). More than 1,100,000 load applications and hundreds of millions of scientific readings will have been recorded before the last truck rolls off the track at Ottawa, Illinois. The fleet of trucks—from farm-size pickups to 54-ton semi-trailers—will have piled up an impressive 17 million miles of travel. On the test loops, 836 separate sections repeat nearly 200 different pavement combinations to provide a wide range of measurements.

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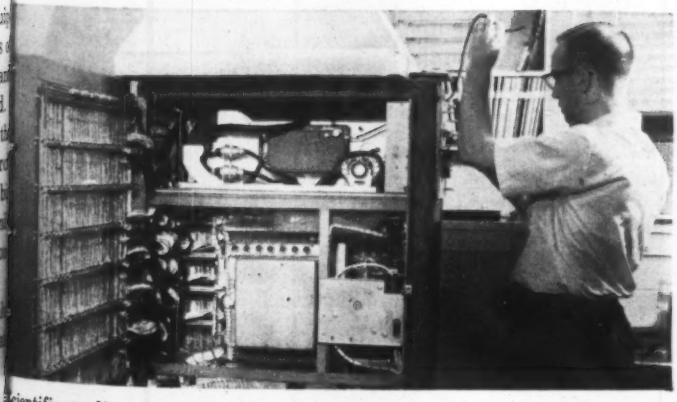

cientific readings by the millions have been analyzed by AASHO com-uters. "Statistically unassailable" facts on pavement design will result.

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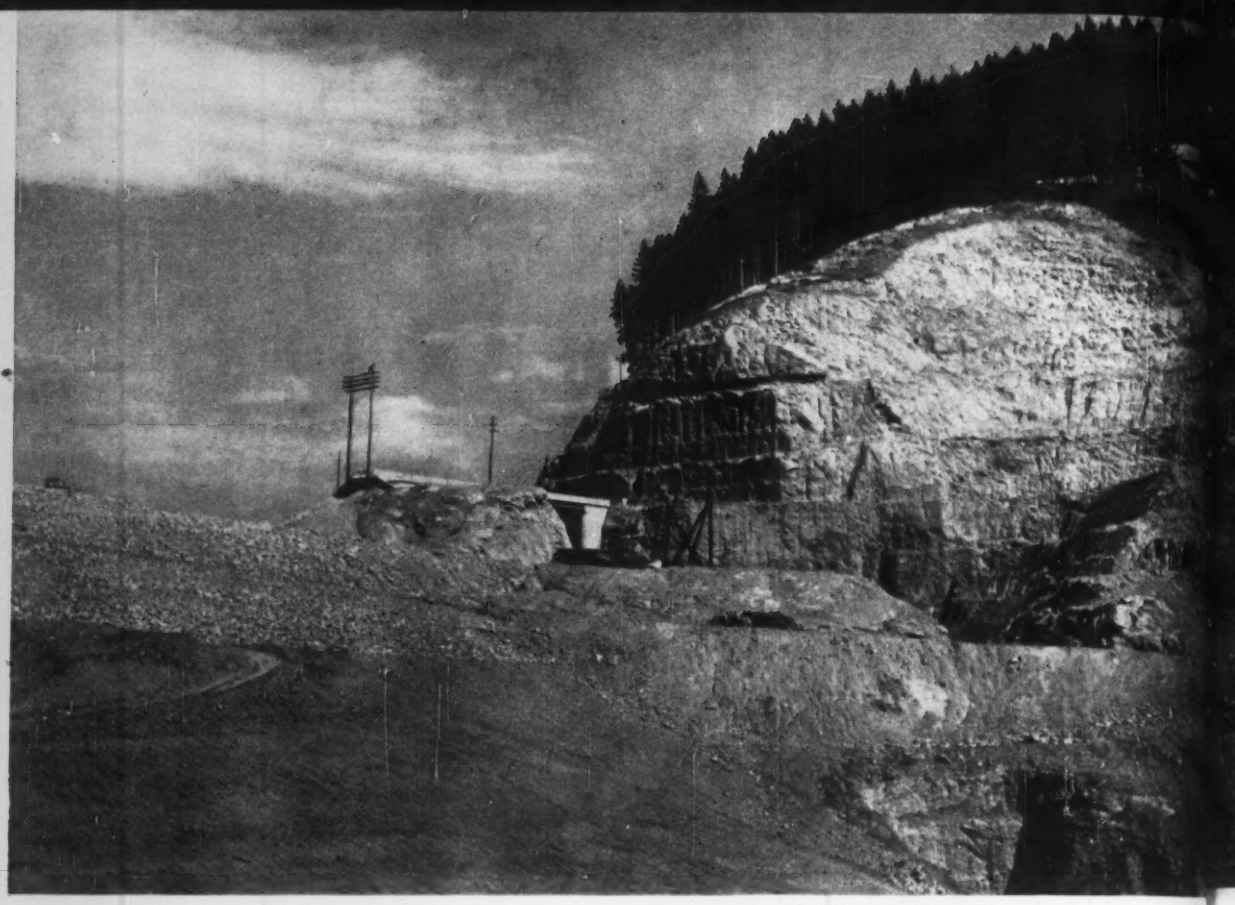
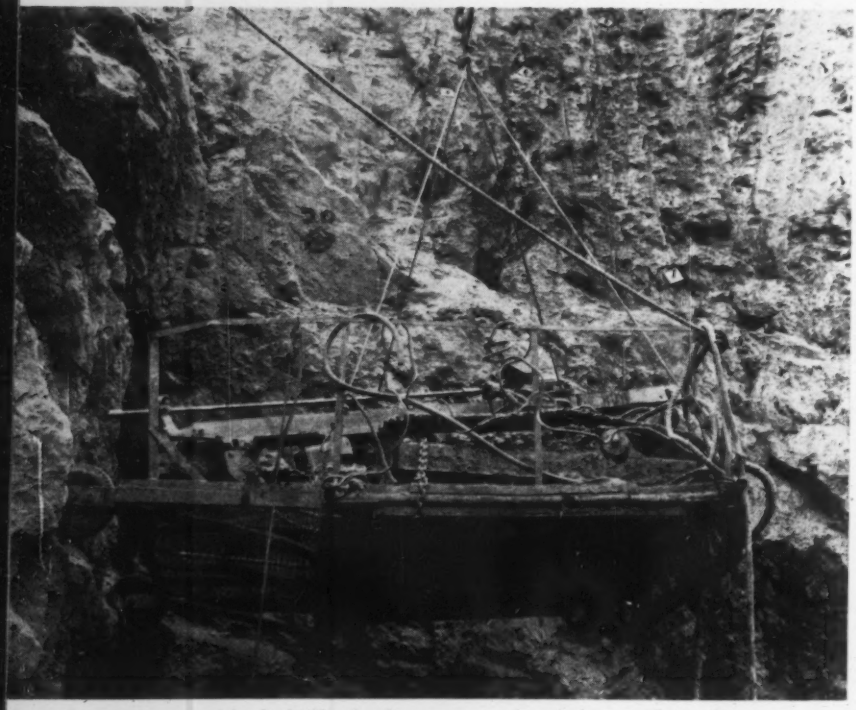
Administered and directed by the Highway Research Board of the National Academy of Sciences—National Research Council.

Operated by a staff of engineering and technical specialists.



Previously undetected faults in dam abutment required the flattening of excavation slopes and

Rock Mechanics Beats Bad Rock



Crane suspended drill platform was used for rock bolting.

The fledgling science of rock mechanics was applied successfully at Hills Creek Dam in Oregon. Its techniques, involving analysis of the physical properties of rock under load and the strengthening of the rock, if required, by rock bolting or other means, proved out at Hills Creek, where exposed rock formations were not as sound as expected and had to be stabilized.

Hills Creek Dam is an 11-million-cu-yd, 346-ft-high gravel and rockfill dam being built for the Corps of Engineers. The embankment has a central impervious core of gravel, clay and silt, surrounded by compacted gravel shells with rock blankets at appropriate places. Some modifications were made in the dam section during construction to better suit it to the materials available.

Hills Creek Dam is located on the Middle Fork Willamette River some 47 miles southeast of Eugene, Ore. Primary function of the $46-million project is to provide additional flood control potential for the Willamette River Basin. It will have a small powerhouse totaling 30,000-kw capacity. The dam will store 356,000 acre-ft of water, 107,000 acre-ft in dead storage, 49,000

increased rock bolting.

at Damsite

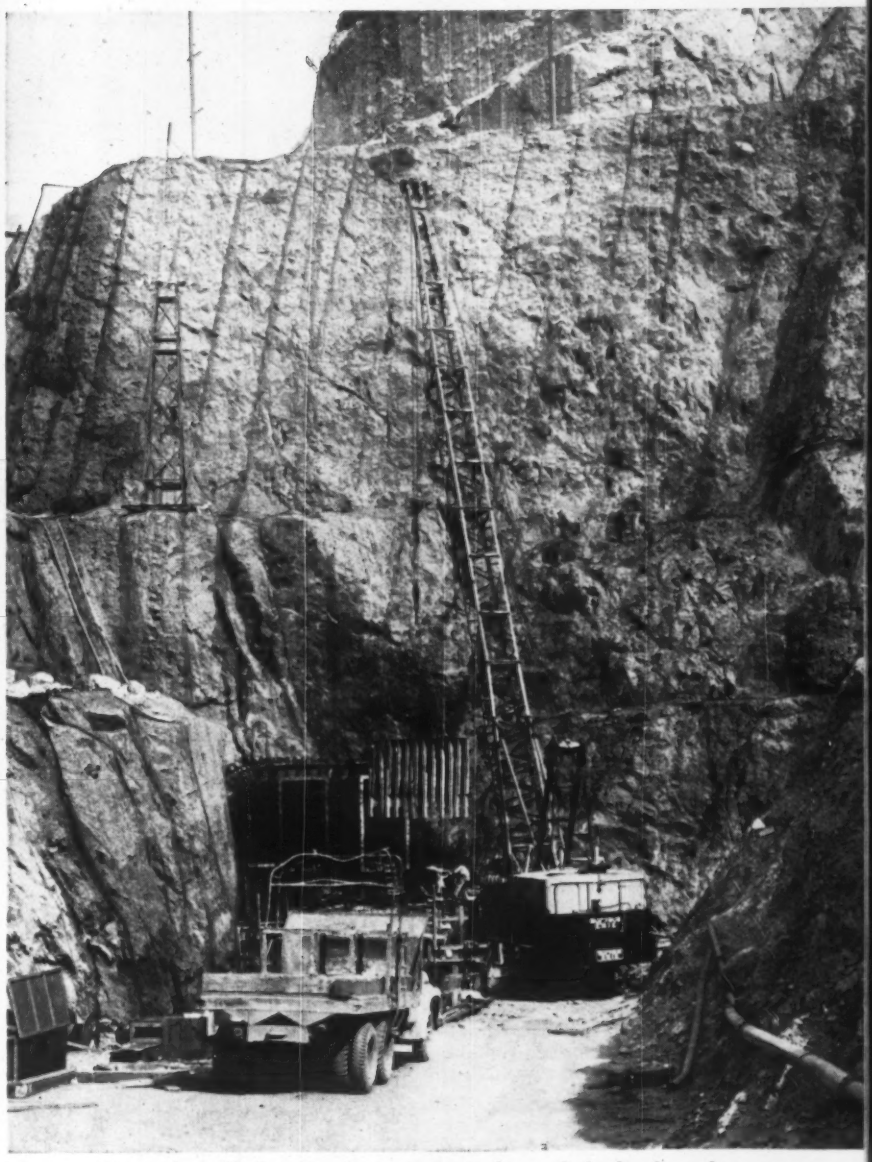
acre-ft for power, and 200,000 acre-ft reserved for flood control. Construction was begun in 1956 and the project will be available for flood storage in the 1961-62 runoff year.

• **Rock bolts**—The project required 53,000 lineal-ft of 1-in.-dia rock bolts—mostly to stabilize the right abutment, but a significant amount was also used in the various tunnels on the project.

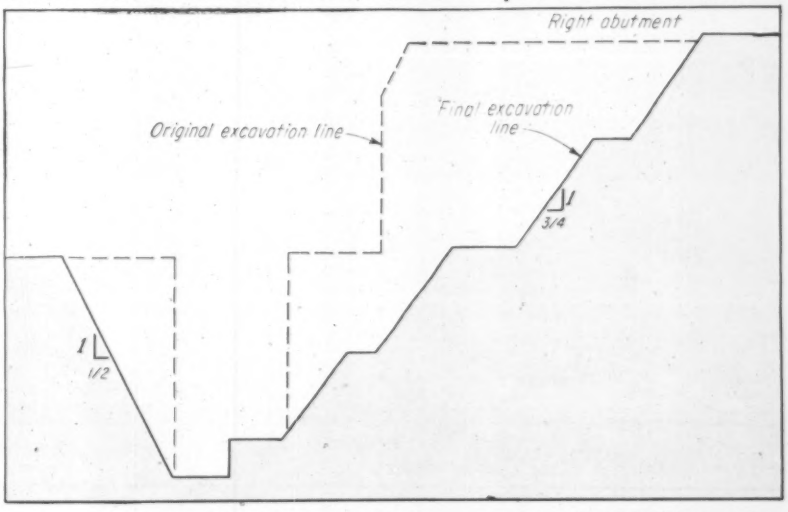
The 1,150-ft-long diversion tunnel was built by Shea Construction Co. under a $1 million contract. This tunnel has a 23-ft horseshoe shape inside the concrete lining. Rock bolts were used extensively on the diversion tunnel.

With the rock bolting experience on the diversion tunnel and based on experience with the particular rock encountered, it was expected that a substantial amount of rock bolting would be required on the main dam contract. Accordingly, the project was bid on the basis of 22,000 lineal ft of bolts. However, as it turned out, more than twice that footage was required.

Need for increased use of rock bolts is attributed to material encountered



Intake channel walls had to be extensively rock bolted and . . .



. . . rock excavation increased by more than 300,000 cu yd.

in the right abutment. Geology of the area is complex with most rock being of volcanic origin. The right abutment, which includes the spillway as well as the intakes for the powerhouse and outlet works, is founded on a formation that is largely tuff, a porous rock formed by deposits of volcanic ash or dust.

Original plans called for the face of the right abutment to be vertical with two setbacks. However, when the rock was excavated several unexpected faults coupled with high-angle shear planes were encountered. The area had been extensively core drilled ahead of construction, but the drill holes had not indicated the severity and extent of the various faults. This is where rock mechanics comes into the picture.

Rock mechanics involves first of all an analysis of the elastic and structural qualities of rock. This information is used to predict behavior under both static and dynamic loads. And, finally, methods are developed, using this knowledge, to stabilize the formation under the conditions to be encountered.

At Hills Creek, slopes of the abutment and intake channel were sloped back to unload some of the critical areas. And the excavation was reshaped to support and confine many of the faulted areas. Where possible, the slopes and setbacks were adjusted to fit the faults.

The left side of the intake channel was sloped to ½ on a 1 (½ horizontal on 1 vertical). The right abutment was sloped to ¾ on 1 with four berms.

Quantity of rock excavation increased from an original estimate of 919,000 cu yd to almost 1,250,000 cu yd. This additional rock work required modification of the contract with Green-Tecon—a joint venture of Green Construction Co. of Des Moines and Tecon Corp. of Dallas.

The flatter slopes and increased rock excavation quantities did not fully guarantee stability of the abutment. Strengthening in the form of additional rock bolts was needed to make the resulting combination structurally sound.

IMPERVIOUS CORE is watered, then compacted by D8 tractors as dam nears final height.

On vertical faces, rock bolts were generally installed in a diamond pattern with 10 ft between vertical and horizontal extremities of the diamond. On sloping faces, rock bolt spacing was somewhat greater.

Rock bolts used were in 1-in.-round split wedge type. Lengths ranged from 10 to 30 ft with 20-ft lengths predominating. Although the split wedge guarantees seating of the rock bolts, grouting was also used.

Despite differing conditions of future exposure, almost all of the rock bolts were installed alike.

Rock bolt holes were drilled by several methods. Some of them were drilled with a track-type drill operating off the floor of the excavation. Other holes were installed with similar drills working from a platform suspended from a crawler crane. And many were drilled with jackhammers by workmen on platforms or suspended by lines.

Rock-bolt nuts were tightened by air-operated impact wrenches. Tension was checked in each by a torque wrench.

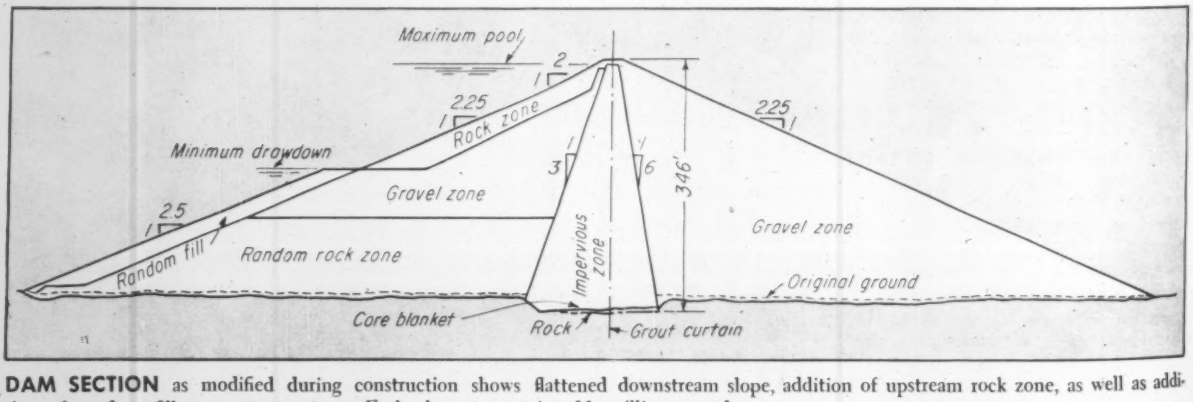
Rock-bolt grout was a mixture of sand and cement with a small amount of aluminum powder to prevent shrinkage.

As a safety factor during construction several acres of chain link wire mesh was installed along with the rock bolts. Not counted on for structural purposes, the wire mesh however, has held large masses of sloughing rock as well as loosened boulders.

A further precaution involved 2¾-in. percussion drill holes driven into some of the slopes about 5 ft above the berm level on 50 ft centers to provide drainage of the rock slopes.

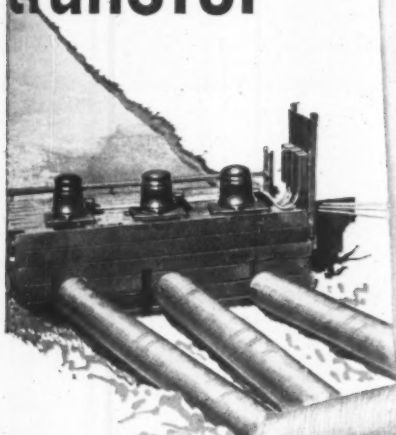
• **Gravel-based core material**—Material available for the dam embankment was considered to be adequate for a dam of this nature. But, as in the case of the right abutment, it turned out to be of poorer quality than pre-construction investigations had indicated. However, thoughtful modifications of some elements of the dam brought a sound structure.

The core material, for example, is gravel with enough silts and clays to



DAM SECTION as modified during construction shows flattened downstream slope, addition of upstream rock zone, as well as addition of random fill on upstream toe. Embankment contains 11 million cu yd.

for effective liquid transfer



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give it the required degree of imperviousness. To get required density, the material had to be applied too wet to permit the use of 50-ton rubber-tired rollers for compaction. So the lifts were reduced from 12 in. to 8 in. and the material was compacted by four passes of a crawler tractor.

Most of the core material was hauled by 24-cu-yd carrying scrapers. To minimize travel of the scrapers through the core area and keep them from becoming mired, loads were deposited by diagonal rather than longitudinal passes of the scrapers. Tractor pushing was needed for much of the unloading. Later in the job, when the core section thinned out, the material was hauled by 30-cu yd bottom dump earthmovers, which deposited the material alongside of the core. It was then pushed into the core area by one tractor and spread longitudinally by another.

Borrow area for the core material is located on a hillside about a mile and a quarter below the dam. The gravelly formation includes many large rocks. The larger sizes—up to 4 ft in dia.—were stripped out during the excavation process. Rock larger than 6 in. in dia was removed by passing the core material through a universal wobbler.

Core material in the pit includes old sedimentary deposits. It has layers of varying thickness of clays, silts and gravels. To make sure these materials were thoroughly mixed, the material was shovel excavated from a vertical face at least 20 ft deep.

• **Gravel shell material**—As originally designed, the dam was simply an impervious core protected by two shells of gravel material. Gravel for the shells came from stream bed deposits above the dam proper. These gravels turned out to include small amounts of fine colloidal clay that almost defied laboratory detection. This clay amounted to less than 2% passing a 200-mesh sieve.

Although it was effective in making the material plastic, it prevented the gravel from draining as fast as desired. This resulted in some rutting of the deposited material as it was compacted by rubber-tired rollers. The main deficiency of the gravel shell material, however, was that it was not as pervious as desired.

Three steps were taken to overcome the deficiencies of the shell material. The downstream slope of the dam was flattened from 2 on 1 to 2½ on 1 and an 80-ft-thick rock blanket was provided in the drawdown zone of the upstream slope. Finally, a 50-ft-wide berm of additional random fill material was added on the upstream slope below dead storage level. This additional fill was handled by a separate contract with another contractor rather than as an extra work order.

As the shell gravels totaled more than 7,000,000 cu yd, construction concentrated on moving this material. It was excavated by three units—a 7½-cu-yd dragline, a 5-cu-yd dragline and a 4-cu-yd shovel. During the first full season and a half the material was hauled by 18 bottom-dump trucks having 20-cu-yd capacity with side boards. Later in the job these were replaced by larger bottom-dump units that carried close to 35 cu yd with side boards. This shell gravel fill was deposited in 18-in. layers and compacted with two passes of 50-ton rollers.

• **Rockfill**—The volume of rockfill on the project was nearly doubled from that originally anticipated. Increase was from 530,000 cu yd to more than 1,000,000 cu yd.

Rock came from a quarry above the left abutment. When the quarry was first opened up it was developed by a pair of coyote-hole tunnels with branches. These tunnels were loaded with a total of 186 tons of ammonium nitrate and shot to develop the 500,000 cu yd of rock originally thought necessary. Additional rock was developed by drilling with self-propelled wagon drills and blasting as needed. Rock was excavated by shovels loading into 17-cu yd end-dump trucks.

• **Clay blanket**—The right abutment of the dam is founded on a rock formation which extends more than half way across the dam. Foundation for this part includes a core trench with a single row of grout holes.

The left abutment is founded on a fractured rock formation overlain by a deposit of natural clay. This rock is so broken up that it was felt impractical to even attempt to grout it. Two things were done to make it a suitable foundation for the dam. A carefully compacted layer of clay was placed on the left abutment extending some 500 ft upstream from the dam axis. This compacted zone was at least 6 ft thick and was made of natural materials recompacted in place, or of select clay.

In addition, a 408-ft-long tunnel was constructed to drain the left abutment. This tunnel is concrete lined, 4 ft wide by 7 ft high. It goes into the left abutment downstream from the axis of the dam. Purpose of the tunnel is to control and observe seepage through the left abutment. Drain holes will be drilled radiating out from this tunnel to control seepage through the abutment—and piezometers are being installed in the abutment.

Col. Walter L. Winegar is Portland District Engineer for the Corps of Engineers. Phil Cole is resident engineer. T. Chalmers Beard was project manager for the joint venture of Green Construction Co. and Tecon Corp.

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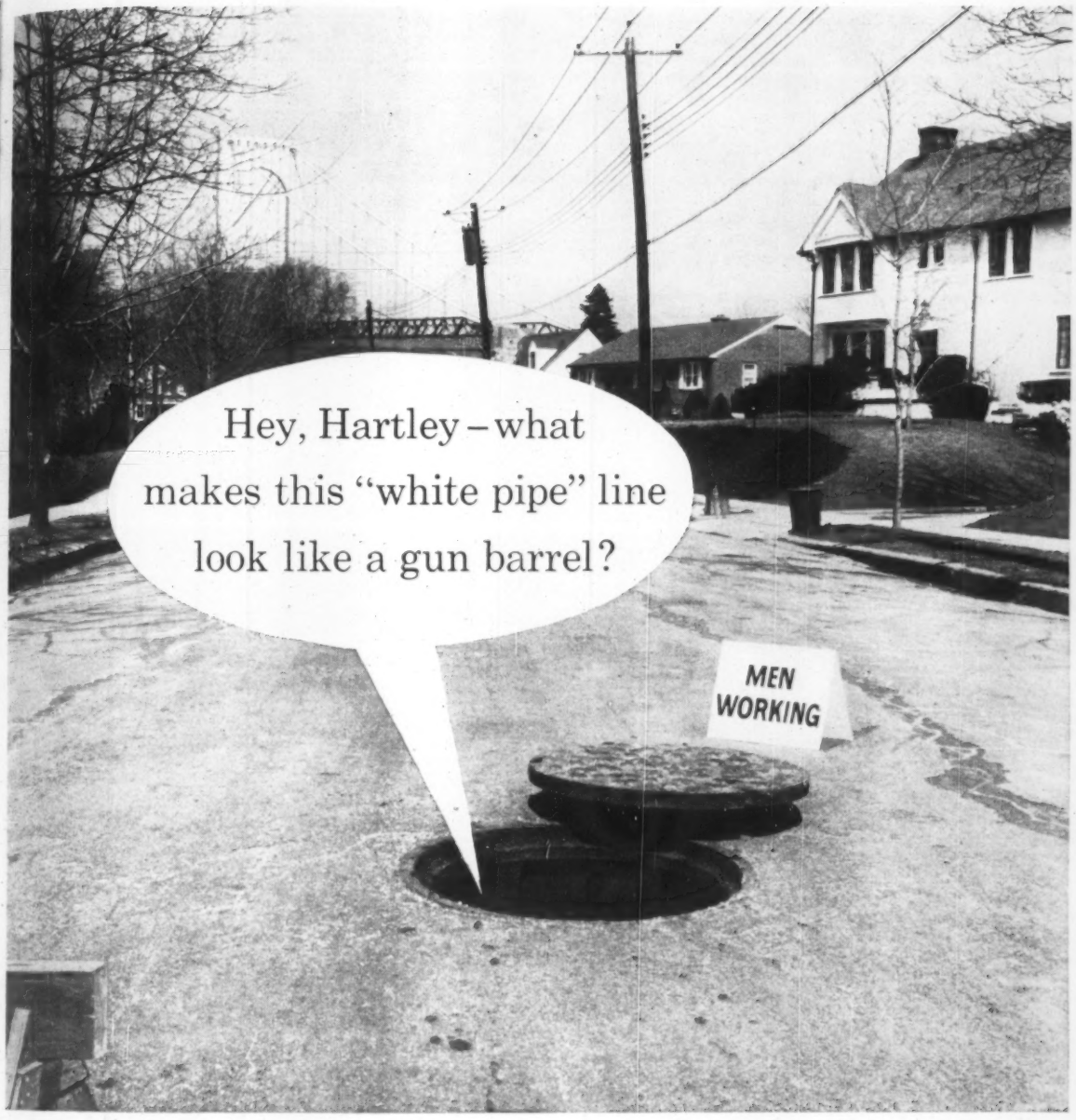

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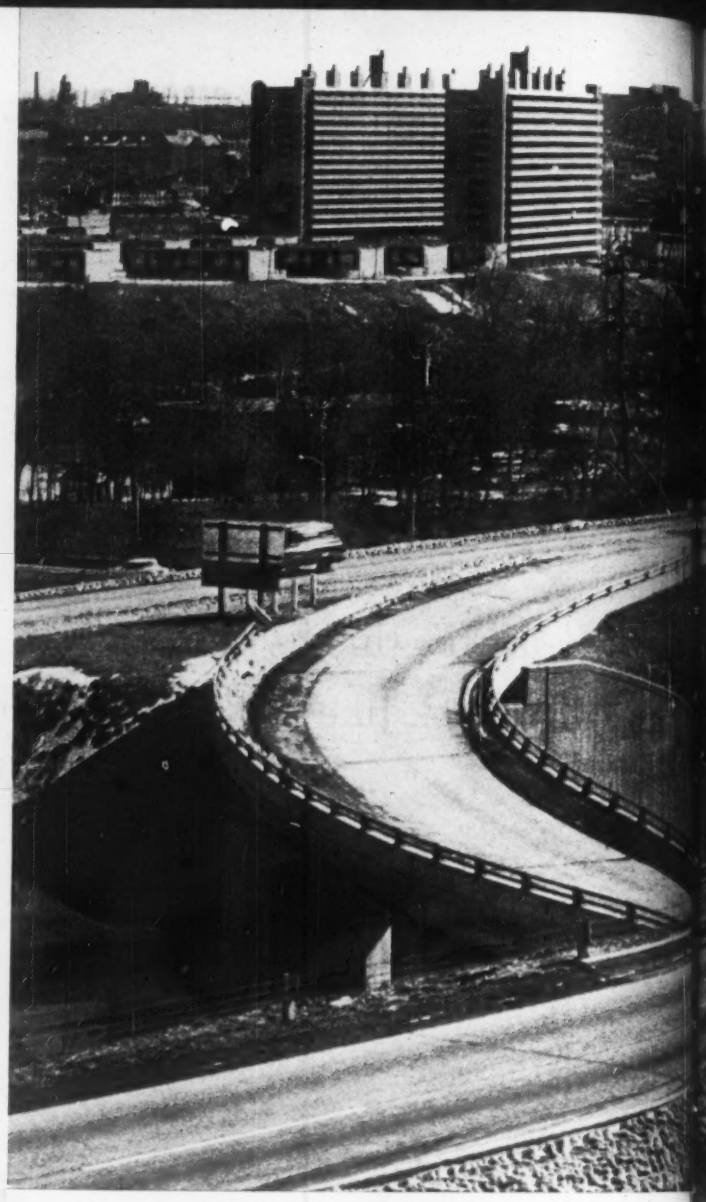

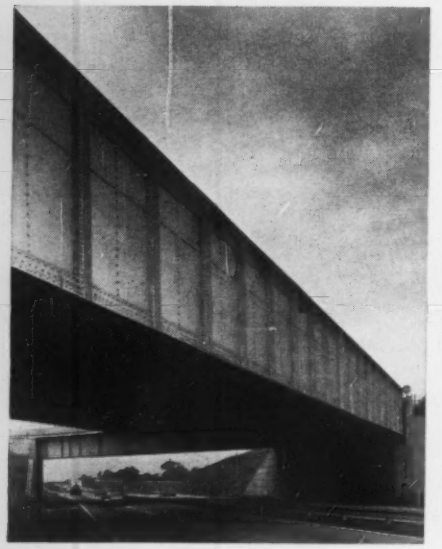

Short-span bridge over Pennsylvania Turnpike at Norristown, Pa., designed in steel for fast erection and low cost.

Mr. Michael Baker, Jr. at far right, discusses the Schuylkill Expressway—City Line Avenue Interchange at Philadelphia that his company designed with USS Structural Carbon Steel. Other men include Joseph Mundo, Wayne H. Meyers, C. V. Knudsen, Robert L. John and C. F. Eben, Jr.

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or more. Steel structures fill both requirements well.

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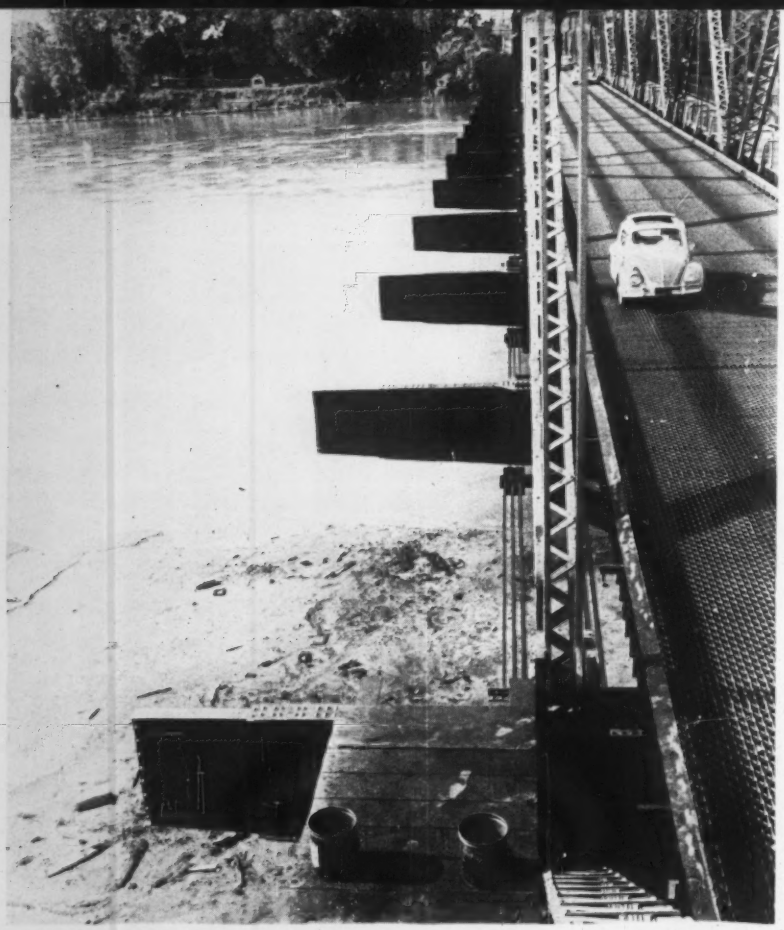
They are converting a bridge built in 1885 for horses and steam locomotives into a modern four-lane highway crossing at Sioux City, Iowa. It will cost less than 60% of what it would cost to build a new parallel bridge.

Keeping costs down are an ingenious method of salvaging and reusing steel stringers from the old bridge, and a contractor-built rig for removing, hauling and placing structural steel.

The job is Combination Bridge over the Missouri River at Sioux City. It now carries two lanes of auto traffic; two more lanes are being added to bring capacity to 30,000 vehicles per day.

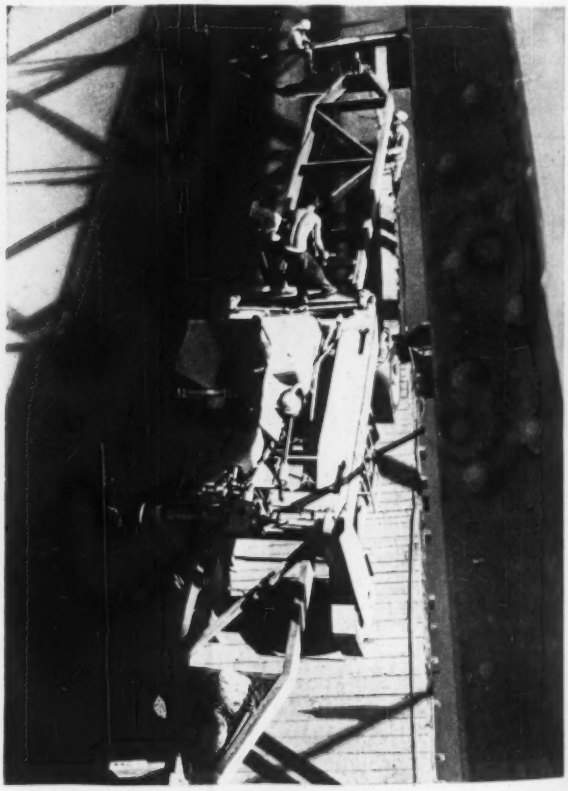
The work is the latest in a series of alterations since the bridge first opened to traffic. Originally, Combination Bridge carried a single-line railroad track down the center between the steel trusses. Two timber-decked wagon ways hung outside the trusses on structural steel cantilevers; and on the outside of one of the wagon ways hung a pedestrian walk.

In the 1920s the tracks were replaced with a 22-ft, two-lane roadway of steel decking between the trusses. The wagon ways were closed to all but foot traffic. The bridge remained ade-



Narrow old bridge was given new "outriggers" for widening.

Modified straddle carrier removes old deck . . .



and original stringers from outboard section.

Doubles Bridge Capacity at Low Cost

quate for its traffic until 1951. But in that year the tolls were lifted and traffic increased sharply. Peak traffic now is about 2,500 vehicles per hour, a good deal more than two lanes can handle efficiently.

Designers, faced with the problem of increasing the bridge's traffic capacity, decided that the basic structure was adequate for two more lanes of auto traffic. Built for heavy train loads, it could easily handle modern highway loadings (H-20). Calculations showed that changes required in the outrigger (cantilevered) system would be minor; the truss members would need no revision at all. A new crossing was ruled out because of costs.

Key to the widening project is use of the old outrigger system. The system consisted of steel brackets on 32-ft centers cantilevering out 9 ft from the trusses. Two plate girder stringers rested on the brackets and carried the timber deck.

In dimension and design, the outrigger brackets reflected construction methods of the 1880s. Four-foot sections of the braekets next to the trusses were steel girders built up of plate and riveted angles; the remaining 5-ft length comprised trusses made of angles. Both stringers were built up of plates and angles. The inner stringer was 2 ft 9 in. deep in the web; the outer stringer, 2 ft 3 in. deep.

In modernizing the cantilevered section, the contractor cut off the outboard 5 ft of each outrigger and substituted a solid web member, built up of plate and angles. The old stringers, reshuffled and reworked, are put back on top of the outriggers.

On top of the stringers in each 32-ft panel are nine 10WF19 joists, each 13 ft long. The joists are welded to the stringers. On the joists, in turn, are laid three 4-ft panels of steel grating to form the 12-ft-wide deck.

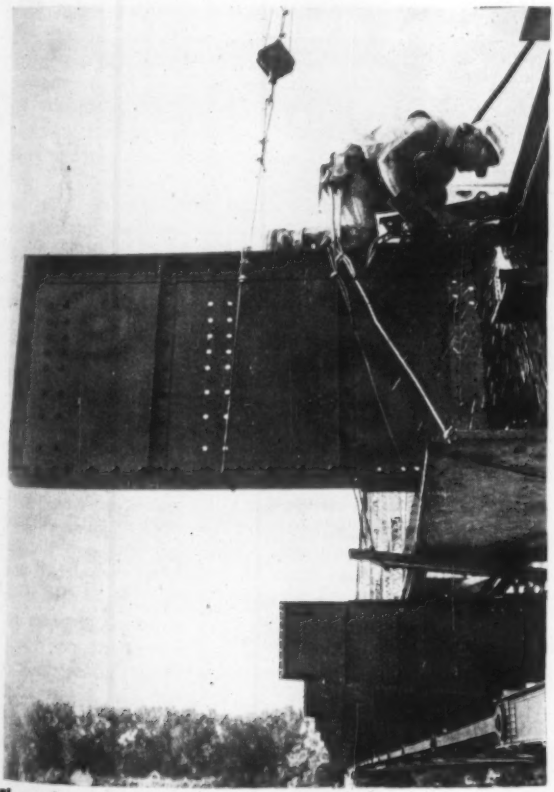
The contractor beefed up the load-carrying capacity of the old stringers by welding cover plates to the flanges. An 8x$\frac{1}{2}$-in. plate is welded to the upper flange; lower flange cover plate is 8x$\frac{3}{8}$-in. For extra capacity, the stringers are reversed when put back in place. (The 2-ft 9-in. stringer is shifted from inboard to outboard position, and the lighter stringer goes to the inside.)

Weight of cover plates added to the old stringers is about 71,000 lb. Engineers estimated new stringers would have weighed 474,000 lb. Re-use of the old stringers saved the purchase of 403,000 lb of steel. Estimated savings, including reconditioning costs: $68,000.

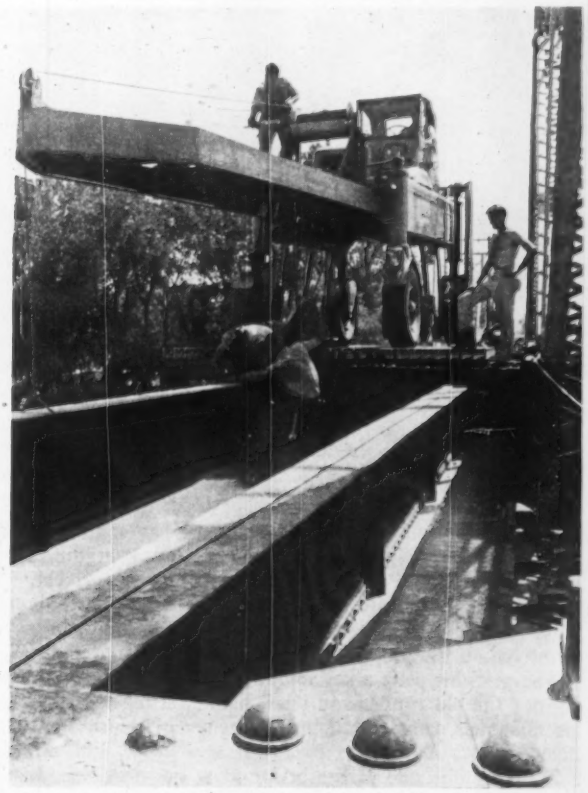
Principal challenge to the contractor —Foster-Smetana Co. of Omaha, Neb.— was the requirement that the two existing lanes be kept open to traffic at all times. This meant that all work had to be done from two roadways only 9 ft wide—too narrow for a conventional crane, since the swing of the smallest available rig of this type with adequate load capacity was 6 ft.

The contractor solved the problem with a modified 10-ton straddle carrier. The modification consists of a fixed boom mounted on the underside of the rig. The boom is 40 ft long and 4 ft 8 in. wide. It projects 20 ft ahead of the carrier and 8$\frac{1}{2}$ ft behind. The boom is a horizontal truss with 10-in. channels as main members and 8-in. channels for cross bracing.

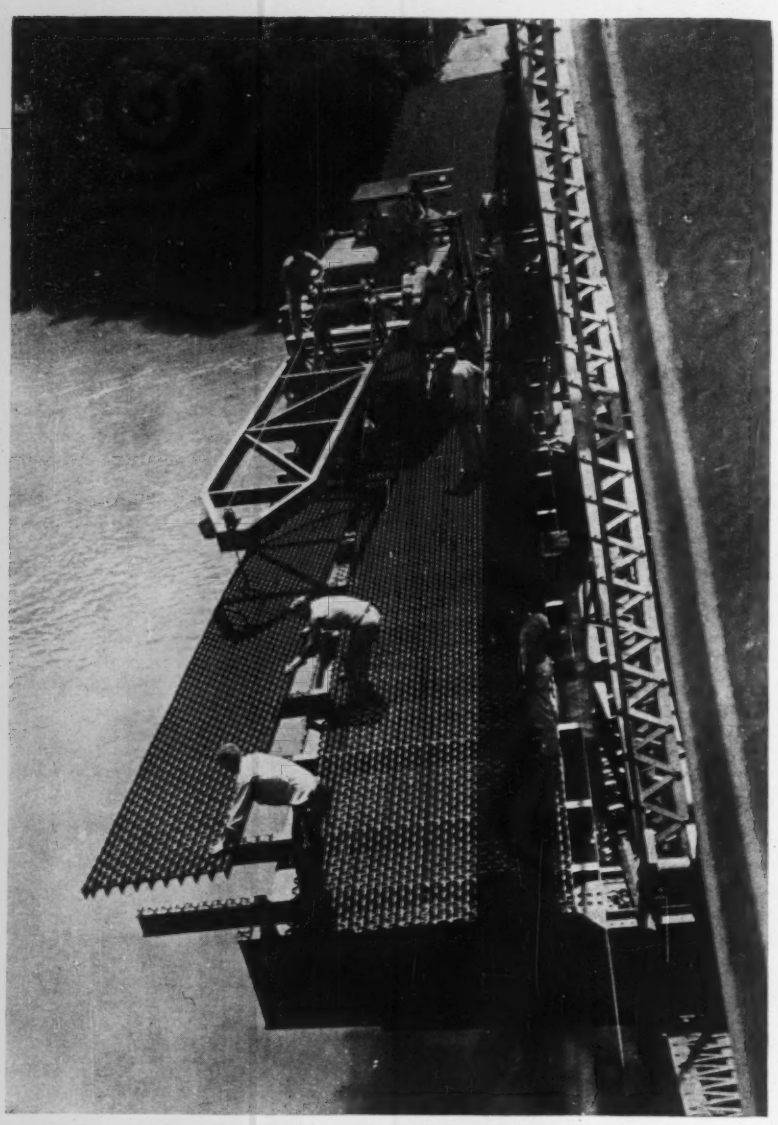
Shelf brackets welded above the carrier legs support the boom, which is held in place by a single bolt. A lifting cable runs over a sheave at the front of the boom to a manually operated winch mounted near the cab. Three thousand pounds of boiler punch-



Floor beams get new end sections and . . .



reworked stringers go back into place.



Contractor-built rig places steel deck on joists.

ings carried in the rear boom section serve as a counterweight.

The modified rig has three major advantages: the hand-operated winch gives a sensitivity to potential trouble not possible with a power winch; its narrow tread (6 ft) and four-wheel steering give excellent control and an ample margin of safety in maneuvering on the narrow platform; and engineering calculations show the machine has high stability against tipping—its safe lifting capacity is far greater than maximum loads encountered on the project.

The machine plays a key role in tearing out the old timber and steel, hauling materials, and installing the new steel.

Working one side of the bridge at a time, the contractor first cut timbers of the old wagon way into convenient lengths with a chain saw. The timbers were removed from each 32-ft panel in turn by a boom-and-winch truck operating on the undisturbed decking of the adjacent panel.

Workmen then cut the fasteners holding the steel stringers in place. The modified straddle rig moved forward on the decking and picked up a stringer at the girder's balance point. The operator moved the rig backward, deposited the stringer on the decking, and moved forward to get the second stringer. The machine hauled two stringers at a time to the yard of the Missouri Valley Steel Co., 1½ miles away, and returned with new or reworked structural components.

Removal of the decking and stringers proceeded panel by panel until all the old outrigger brackets were exposed on one side of the structure.

The next task was removing the 5-ft-long trusswork at the end of each outrigger bracket and replacing it with a built-up plate and web member. The contractor did this work from a 96-ft-long, 4-ft-wide traveler that spanned four outrigger stubs. A carefully phased operation was conducted from four work stations on the traveler. The straddle carrier was used to haul new and old steel elements to and from the site.

With work on the modified outriggers completed, the contractor used the straddle carrier to place the reworked stringers and new steel decking.

This work was also done a panel at a time. The rig picked up a stringer, rolled forward, and lowered the girder into place. When two stringers had been set, the machine handled the joists in the same way. After the joists had been welded, the unit handled each of the 4x32-ft sections of steel grating in a similar fashion.

The project is being done cooperatively by Iowa and Nebraska. The Nebraska Department of Roads did the design and awarded the contract. The Iowa Highway Commission is handling construction supervision through its district office at Sioux City. Nebraska is paying 34.5% of the cost; Iowa the rest.

Not only is the bridge growing wider with the current project, but it also has grown shorter with the passage of time. Originally, the bridge ran 2,080 ft from bluff to bluff to put it beyond the reach of the meandering Missouri. River stabilization by the Corps of Engineers and their upstream dams nailed the river in place to make so long a bridge unnecessary.

Two years ago a swing span was removed on the Iowa side of the river in order to shorten over-all length of the bridge to 1,610 ft. Purpose was to make room for an adjacent section of Interstate highway and an interchange leading to the bridge.

Removal of the span was ingeniously done. Traffic used the swing span while two legs of the interchange, converging on the bridge in a curving A, were built almost up to the structure. The span was opened 90 deg, occupying the space between the A's legs without hindrance to traffic. The short gaps in the approaches were then completed and opened to traffic.

John Hossack is acting engineer for the Nebraska Department of Roads, G. C. Stroble is acting deputy engineer and A. H. Dederman is bridge engineer. Iowa's district engineer at Sioux City is J. L. Holdefer. Superintendent for Foster-Smetana is Cyriel Van Severen.

Jersey Central Power & Light Co., Morristown, N.J.
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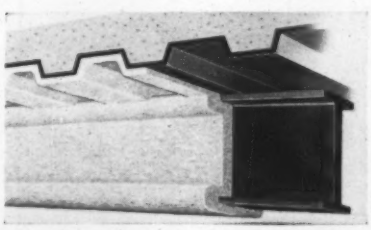

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G-E's Motorized Wheel Drive is available in rim sizes from 29 in. to 45 in.

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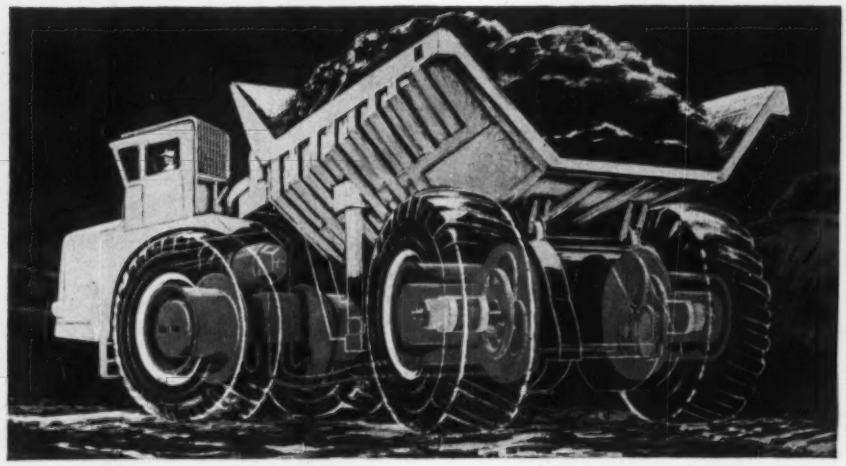

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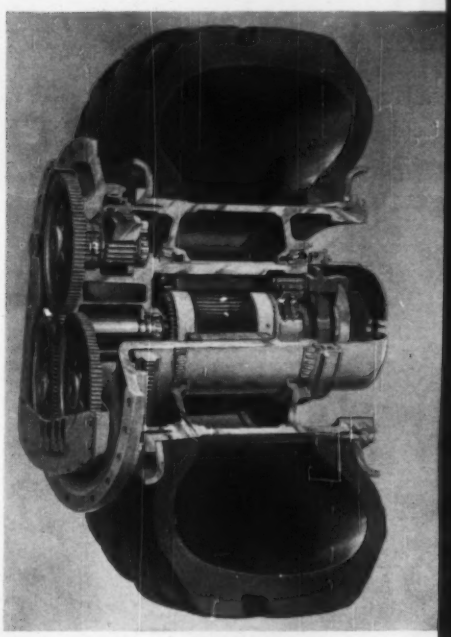

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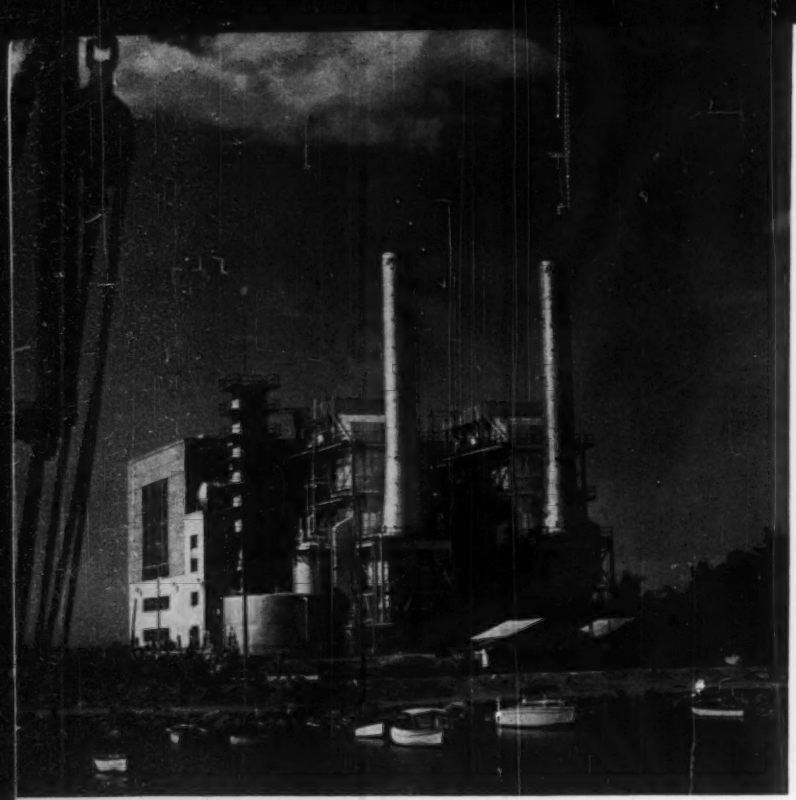
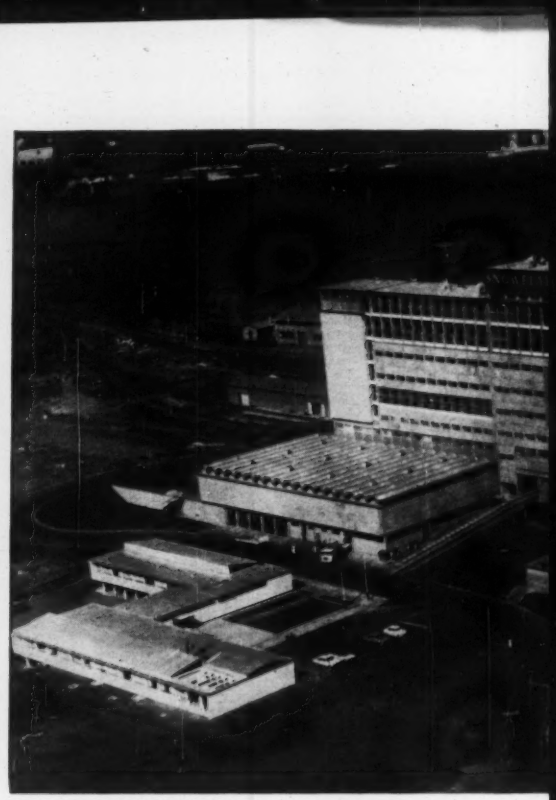
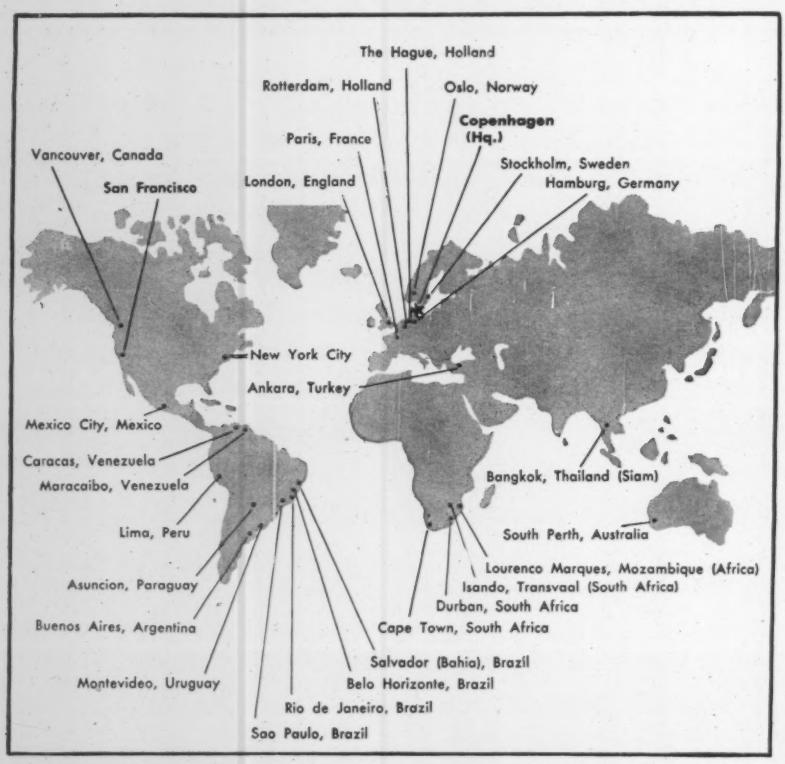


ELECTRIC POWER for Caracas.



INDUSTRIAL JOBS swell C&N volume and will boost

Danish Firm Competes Around



C&N OFFICES—All but San Francisco are in business and that could be next.

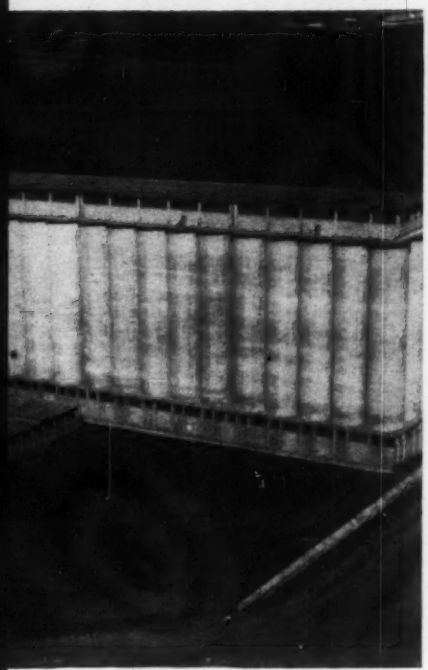
By Robert J. Stinson

A Danish engineering-construction company recognized as a tough competitor by U.S. firms working abroad is awaiting a chance to carve its name on a project in the U.S.

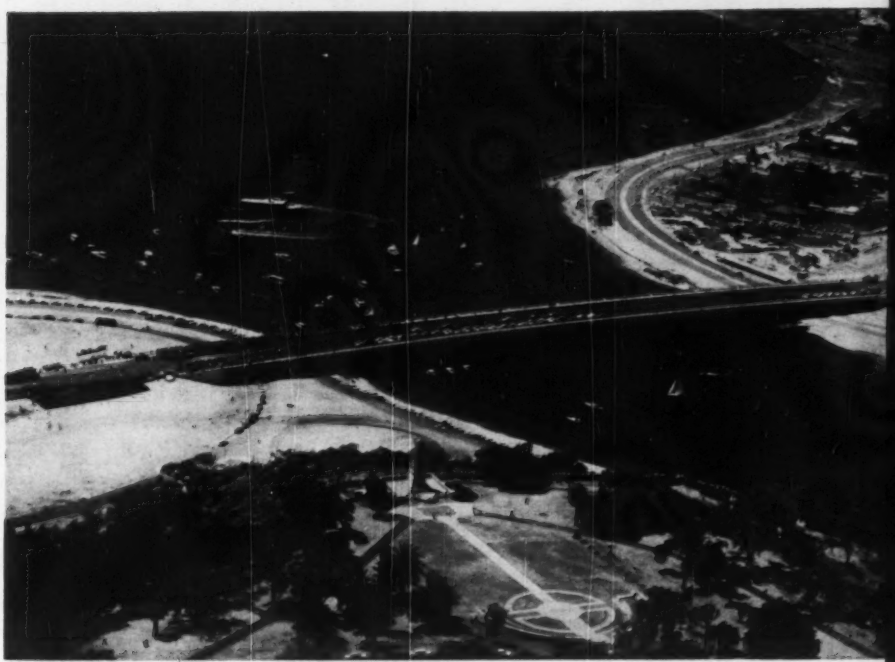
The company is Christiani & Nielsen, A/S, of Copenhagen. And it's training its bidding guns on the proposed $127-million underwater crossing of San Francisco Bay (ENR Aug. 4, p. 27). C&N already has fired one shot on U.S. shores, but a bit off target. As one of a five-company joint venture, it bid for the 3,350-ft tube under the Oakland Estuary between Oakland and Alameda in California. The contract, however, went to Pomeroy-Bates & Rogers-Gerwick of San Francisco for $16.6 million.

But the company has opened a back door to the U.S. construction market. In a joint design and management venture with Foundation of Canada Engineering Corp., C&N won the contract for the $16.5-million Deas Island Tunnel under the Fraser River at Vancouver, B. C.

***ENR's Bob Stinson** went to Christiani & Nielsen's world headquarters in Copenhagen for this story on how the far-reaching Danish engineer-constructor operates.*



it more in the future.



BRIDGES and tunnels fit neatly into firm's design-and-build package.

World; Now Eyes U.S. Market

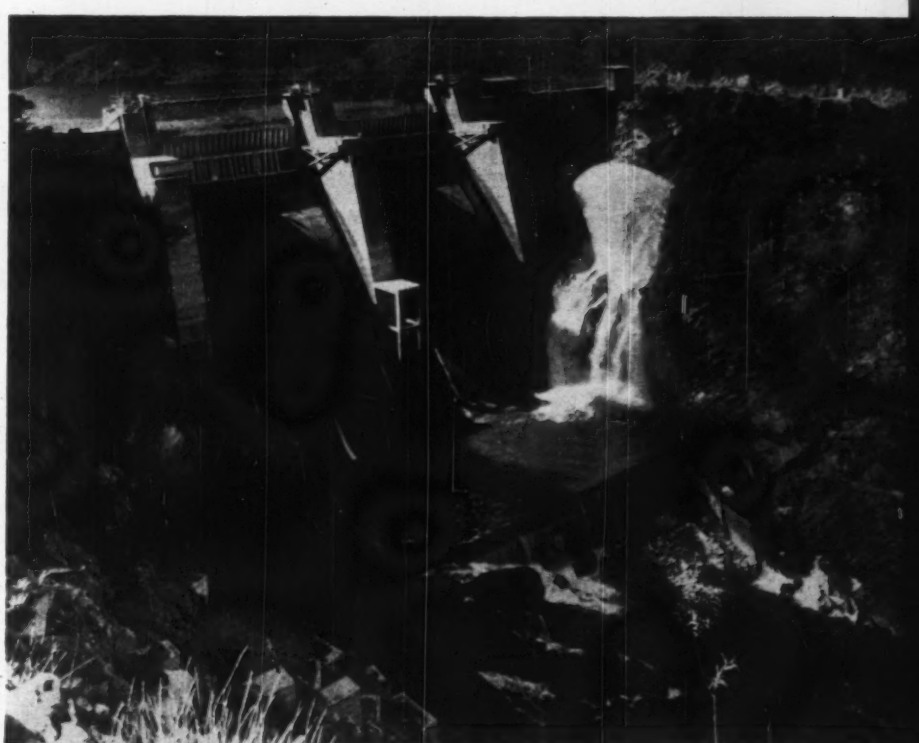
Although tunnel design is an important weapon in C&N's arsenal of competitive weapons, it is not the only one. The company is equipped to design and build practically any type of project —industrial and commercial buildings, dams, power plants, harbor and port works. Name a type of job and C&N has built it. Name a country, and the company has probably worked there.

The company was neither as versatile nor as itinerant in 1904, the year it was founded by Rudolf Christiani and Aage Nielsen. (Mr. Nielsen was active until his death in 1946; Mr. Christiani, now 83, remains chairman of C&N, although semi-retired.)

Established with less than $3,000 capital, C&N's annual volume now averages more than $50 million. From one small office in Copenhagen the company has spread to 27 offices in 22 countries, including one in New York City.

Retaining a firm hold on the reins of this far-flung operation is Rudolf's son, Alex, president of the company. A traveler by necessity, this 50-year-old bachelor is away from the company's Copenhagen headquarters six months out of every year. In that time he visits every office in C&N's network.

With the younger Christiani setting the pace, the other executives find that



DAMS of many types are constructed by C&N throughout the world.

HOTEL and surrounding commercial development in Copenhagen was built by C&N and is owned by one of its subsidiaries.

C&N is no place for stay-at-homes. They, too, are in the air, on the sea, on the road and on the jobsite at least three months a year, usually more. Company outlays for transportation alone are more than $140,000 a year.

But the steady departures and arrivals are coordinated so that decision-making personnel are on tap for final advice on estimating and bidding. These vital functions for the most part are retained in Copenhagen headquarters. Bids and designs for the major projects are prepared by this office's technical department.

Bids for smaller jobs abroad are prepared in the foreign offices. Each of the offices has a bid-maximum, however. These ceilings vary from country to country, with the highest amount allotted to C&N's Brazilian subsidiary, which is the largest and oldest.

Rigid home-office control of estimating and bidding on major projects stems largely from the company's practice of going after, and for the most part obtaining, an engineering design-construction package.

Among the company's major design-construction packages are its tunnels. Its specialty in this line involves shore-built rectangular sections, which are floated to location and sunk into a trench—concrete sunken tube tunnels. C&N holds nine patents on the equipment required for constructing this type of subaqueous tunnel.

First tunnel to use this design and construction technique was completed under the River Maas in Rotterdam, Holland. It was completed in 1941, despite the outbreak of World War II two years earlier and subsequent bombing of the city.

And as an indication of C&N's money-making ability, the job was completed at a profit, even though it was a pioneer design and construction operation done under what amounted to battlefield conditions.

C&N's ability to turn a profit on its jobs under diverse geographical, political and economic conditions to a great extent comes from the subsidiary operation. By chartering a subsidiary company under laws of the country in which it is working, C&N assumes a national flavor—it is not entirely a "foreigner."

But this subsidiary operation, controlled from Copenhagen by C&N's supervision department, does not make an office entirely "native" either. This becomes apparent when C&N is in competition against local companies. The competition is tough. Says Paul Larsen, also a vice president, and with C&N for 30 years, "We—and I mean all companies working outside their own country—have been good teachers. Now we are competing with our good students."

Next to native companies in their ability to compete are the U.S., German and French concerns wherever C&N needs them. "But not in that order," says Mr. Larsen. "It is difficult to rank nationalities as to competitive toughness. All we do is recognize it when it's there." Italian companies, too, are entering the race for business outside their own country. "They are very good," Mr. Larsen adds.

Helping C&N hold its own is familiarity with many of the nations in which it operates, particularly in Latin America. Mr. Larsen explains, "We have been in Brazil and Argentina, for example, for more than 40 years. We know the people and their ways. We have built up efficient staffs in several Latin American countries, and many of the personnel are nationals." In non-European countries, however, key executives are Danish.

Keeping in touch with offices and the scattered permanent payroll of about 2,000 persons, including 600 engineers, is one of the big tasks of the headquarters group.

From all parts of the world come regular job reports, which are not only vital to decision-makers in Copenhagen, but also to maintaining communications with personnel in the field. The full reports are condensed and sent to all of the offices and job sites. These extracts are one way of letting all hands know that no matter where they are, the home office has not forgotten them.

In addition, a monthly house-organ is distributed to all employees, at home and abroad. The publication describes jobs done, jobs sought and general news about the company and its personnel.

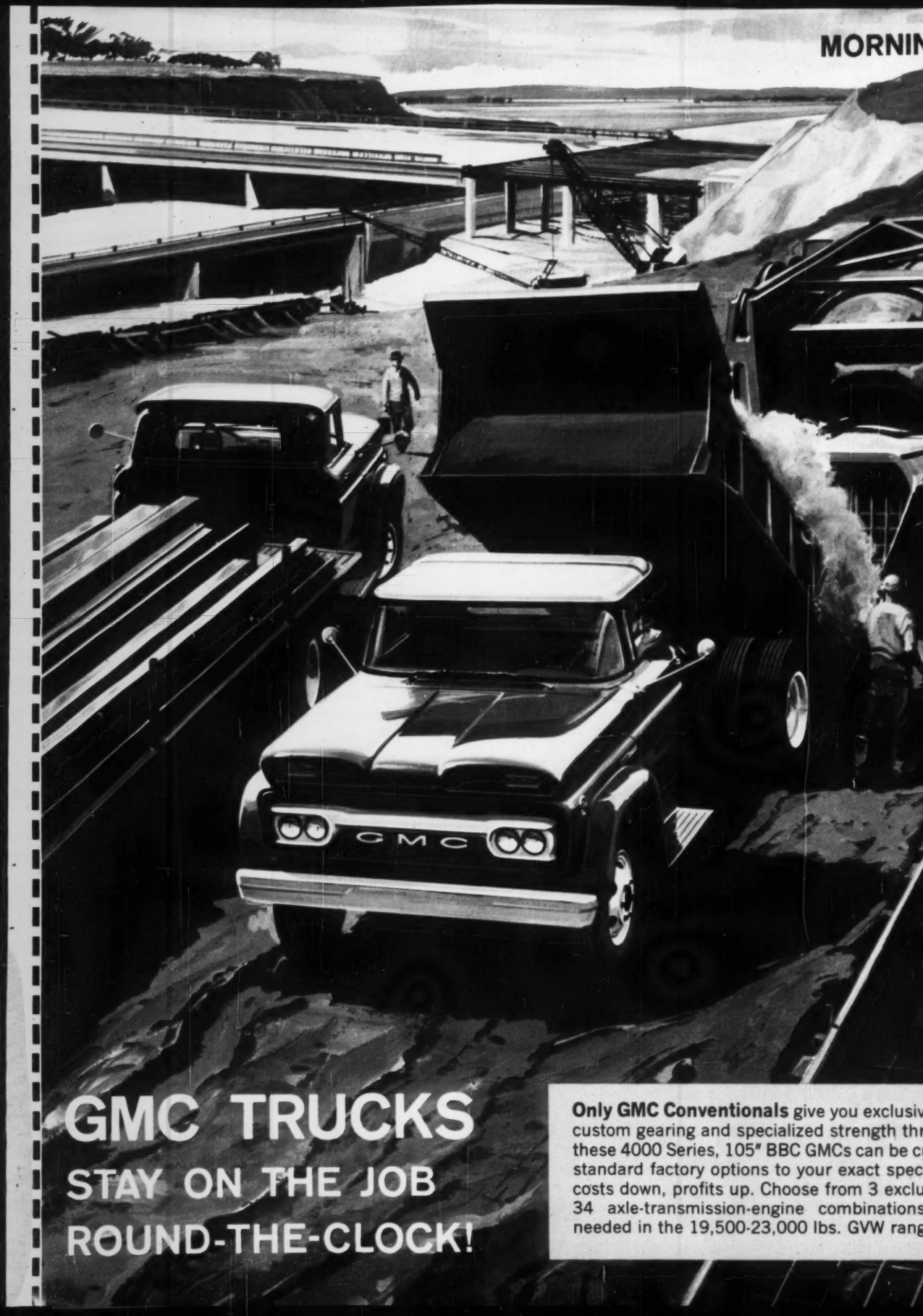
Almost every year, C&N hires several young civil engineers; seven to nine will have just graduated from the Technical University of Denmark in Copenhagen.

Generally, the new employees will first complete two or three years of training in Copenhagen headquarters, then go abroad.

From among the new and young engineers, C&N hopes eventually to obtain its executives of the future. Getting the right men for the organization is one of the toughest jobs of all, according to Mr. Larsen. A man first must be a good engineer, but because he will ultimately be working in foreign countries, he must also be a diplomat, a linguist and a leader. "Get men who are all of these things and a company is well along to success," says Mr. Larsen.

He could have added that ability to think of ways of making a krone or two

(*Continued on page 71*)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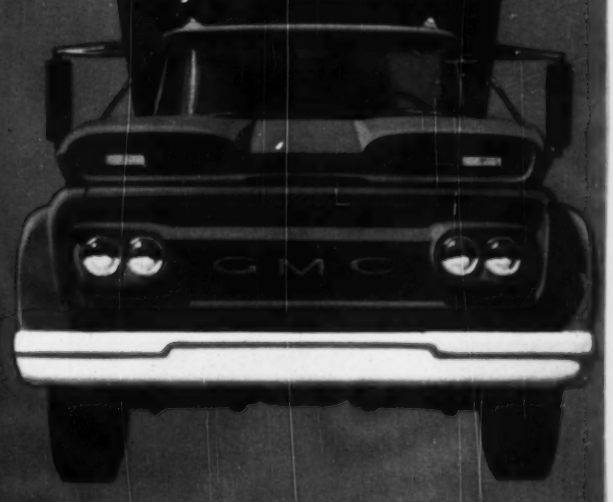

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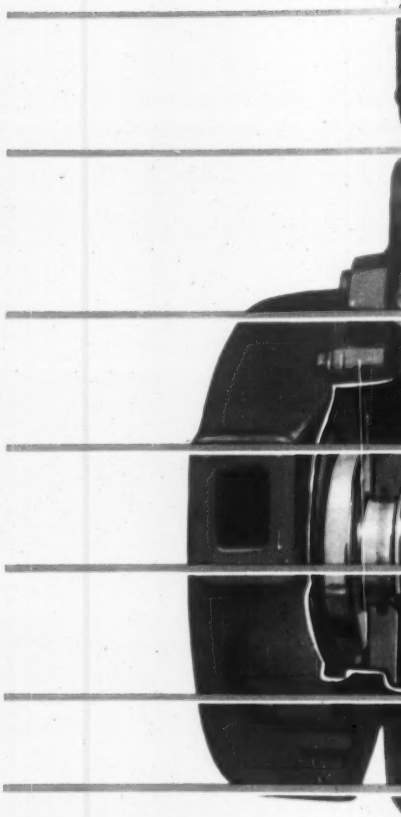
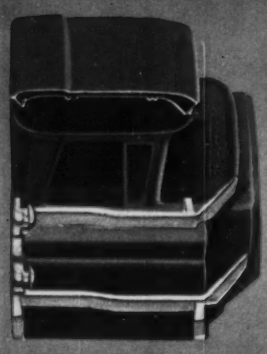
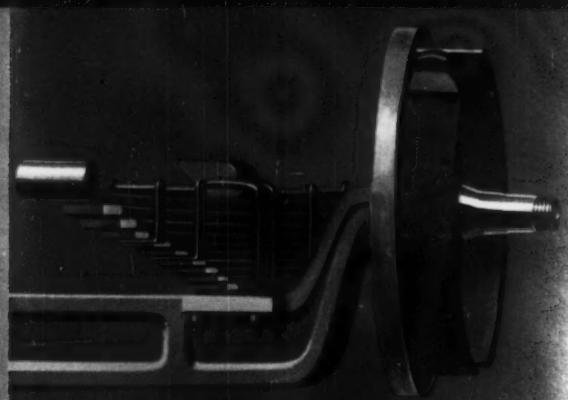


FOR ALL THE PROFIT-FACTS

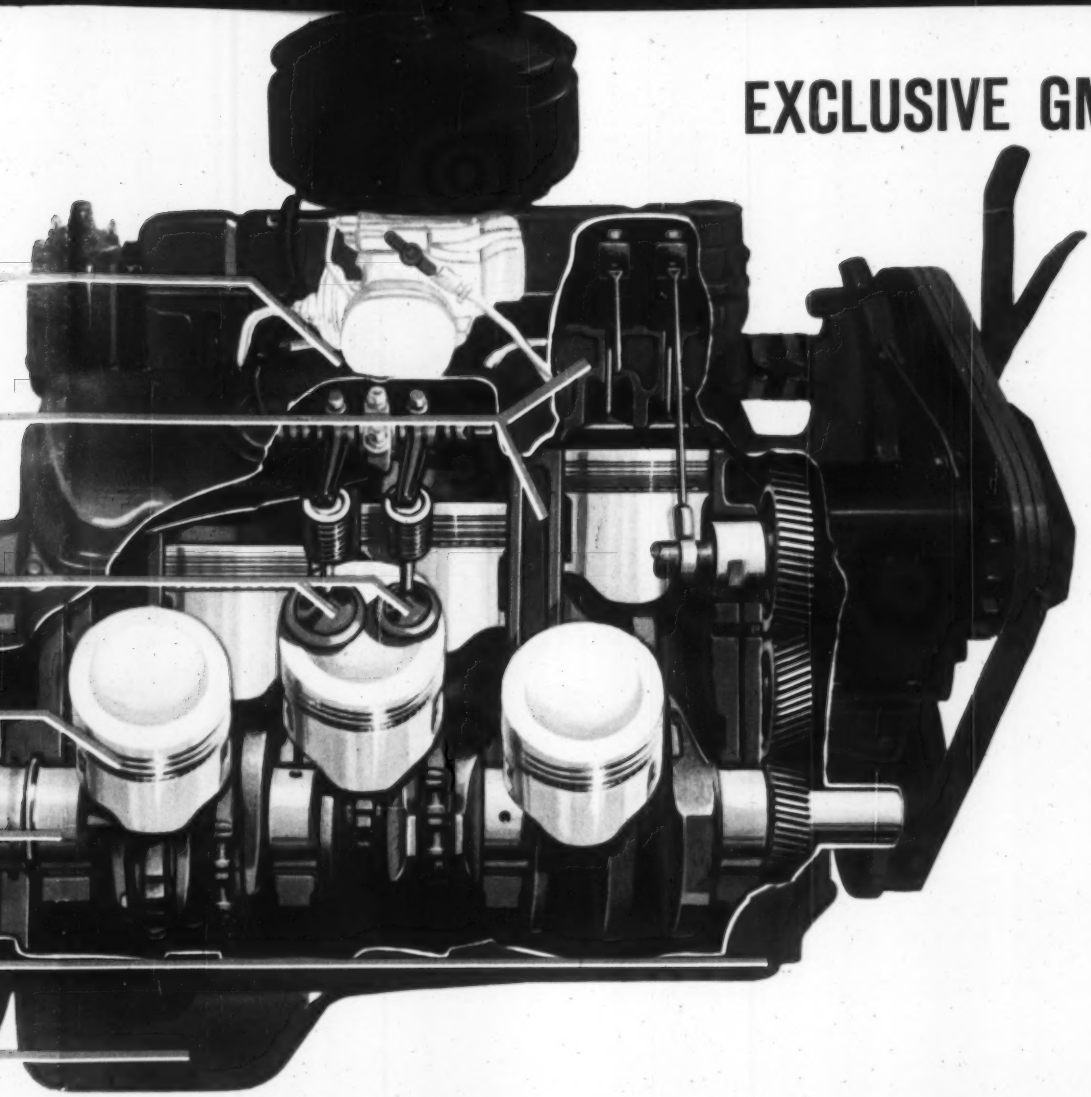


GMC cabs last and last on every construction job because they are built extra-strong and reinforced at all stress areas. See the double-wall design. Entire cab is phosphate coated to protect against damaging rust and corrosion.



Get shorter turns, longer life with new, stronger I-beam front axles, increased tread and wider spring centers. Surer stops and longer lining life with larger brakes.

EXCLUSIVE GMC V-6



TS, SEE YOUR GMC DEALER LISTED IN THE YELLOW PAGES

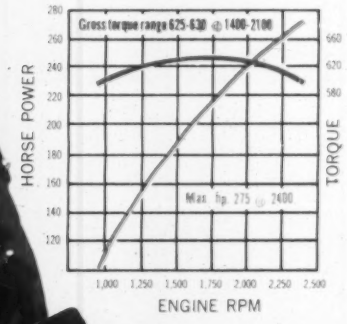
From tough, full-load starts to no-load highway speeds you have the final drive ratios to meet your needs exactly. It's easy with GMC's wide selection of rear axle, main and auxiliary transmission combinations.

AND TWIN-SIX GAS ENGINES ARE BUILT TO OUT-LAST, OUT-PERFORM ALL PREVIOUS GASOLINE ENGINES!

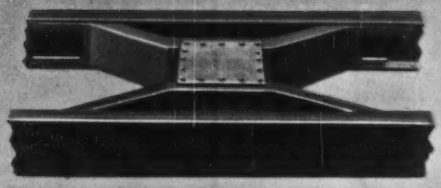
Here are the gas engines that are the talk of the trucking industry . . . with good reasons. Exclusive, extended-life GMC V-6s are built only for trucks, with full power output over a broad range at low engine speed to give you higher performance, stay on the job longer, cut fuel and maintenance costs.

This is the most powerful gas engine offered as standard equipment in trucks today . . . the exclusive Twin-Six by GMC. Look at the power curves below. Notice the high power at low rpm . . . the low-stress, easy-stroking engine speed that greatly extends engine life, saves fuel, reduces gear shifting up to 60%, permits you to maintain higher sustained road speeds on all terrain. Just one turn behind the wheel will prove the unsurpassed performance. See your GMC Dealer and give it a try today.

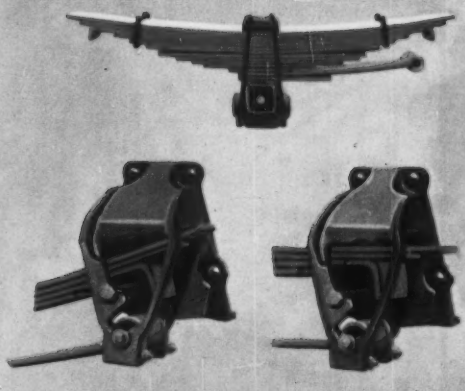
EXCLUSIVE V-6 POWER FOR BONUS EARNINGS ON EVERY HAUL		
Model	Gross Torque Range	Max. Horsepower
305A	258-260 @ 1400-2200	150 @ 3600
305B	264-266 @ 1100-2000	150 @ 3600
305C	268-270 @ 1200-2100	165 @ 3800
351	308-312 @ 1400-2400	180 @ 3400
401	375-377 @ 1200-2000	210 @ 3400



OR ANY OWNERS OF NEW GMC CONSTRUCTION TRUCKS



Truck and cab life are increased with extra-rigid frames of completely new design and construction. Up to 35% stronger, too. They are built to carry the biggest loads under the most extreme applications.

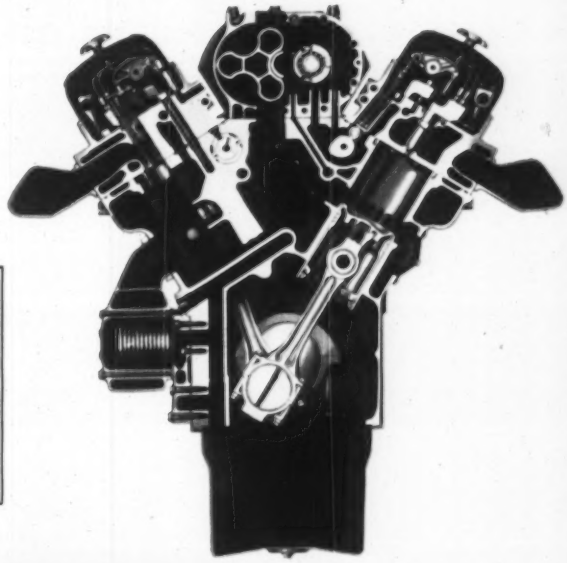


EMPTY LOADED

Bigger the load, stiffer the springs . . . as they should be. This is how new GMC vari-rate rear springs work . . . automatically. Full 3 inches wide, yet they are up to 100 pounds lighter than springs of previous design. Notice the bottom leaf transmits all braking and torque forces to the frame.

NEW V-6 DIESELS ARE SETTING NEW PERFORMANCE AND ECONOMY RECORDS FOR CONTRACTORS EVERYWHERE!

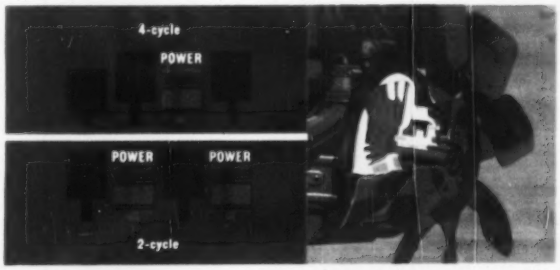
GMC Truck V-6 diesels are the proved, efficient 2-cycle power plants that produce load-moving power on every downstroke . . . smoother, faster acceleration. More power per dollar! More power per cubic-inch! More power per pound! Hundreds of pounds lighter and several inches shorter than comparable diesel engines.



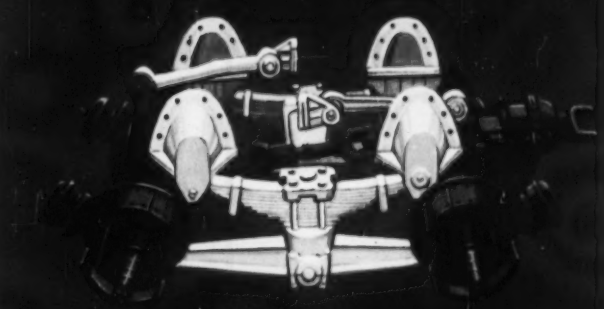
PERFORMANCE-MATCH YOUR DIESEL POWER NEED		
Model	Max. Torque	Max. Horsepower
6V-71	577 @ 1200	189 @ 1800 to 210 @ 2100
	604 @ 1200*	197 @ 1800* to 218 @ 2100*

*At sea level

Smoother, faster acceleration GMC's two-cycle design delivers power on every downstroke of every piston . . . twice as often as in a four-cycle engine. There are no wasted strokes, no power lags.



Save up to 5% on fuel, release up to 7% extra horsepower to the drive wheels automatically with this hydraulically-controlled fan. Standard equipment only on GMC diesel-powered trucks.



More payload, less service is possible with these GMC tandems due to simplified, lightweight design. Greater stability with lower center of gravity. Longer axle and tire life with 50% load on each axle at all times. Four-point mountings eliminate concentrated frame stresses.

GMC
GENERAL MOTORS CORPORATION
TRUCKS

From ½-ton to 60-ton . . .
General Motors leads the way!

GMC Truck & Coach—a General Motors Division
Pontiac, Michigan

ALEX CHRISTIANI heads C&N.

in your own backyard also is an asset. One of the business coups of C&N's young president stands 17 stories high in Copenhagen and cost $8.5 million. It is a hotel and surrounding commercial development completed in 1958 and owned by a subsidiary of C&N. Mr. Christiani saw the tourist boom developing, noted the acute shortage of hotel accommodations in Copenhagen, and moved in.

He also saw that travel by U. S. citizens and Europeans was more and more taking the form of motor touring. The hotel has underground parking for 200 cars and surface parking for another 400. There are shops, a 1,000-seat movie-house and a multi-purpose auditorium with a fully equipped stage.

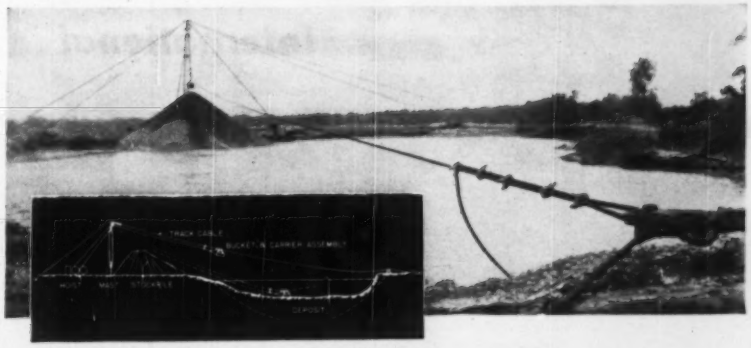
This facility caters to the fast-developing fashion of international conventions and expositions. It keeps the money rolling in during months when the tourist business is slack.

The hotel-commercial center provides C&N with a stable and relatively constant flow of income that helps minimize the sharp up and down swings that frequently are a part of a construction company's earnings pattern.

This successful operation, although an attractive laurel, is not tempting Mr. Christiani to lean back and rest. He and the other executives have their eyes open for new construction business, anywhere, of any type.

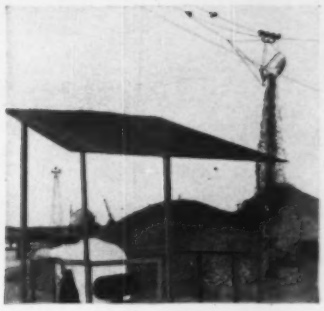
Among the major jobs that they would like to have a hand in is the long-discussed tunnel crossing of the English Channel. Mr. Lassen-Nielsen is one of the chief technical advisors for the Channel Tunnel Study group, backers of the project.

Meanwhile, they'll keep trying for that first big U. S. job.



FROM PIT TO STOCKPILE...

DIG and HAUL for 8¢ per yd.



WITH A SAUERMAN SLACKLINE

Operating costs as low as 8¢ per yd. for labor, power and maintenance are reported by Slackline Cableway owners when digging free-caving material at average depth and haul distances.

These low costs are achieved by using just one machine—the new Sauerman Slackline Cableway. Multiple equipment is not needed to supply your required tonnage. For example, on an average haul and digging depth, a single medium size machine will charge a 200 tph. plant.

The high Slackline mast permits building a large pile which can supply plant demands through a plate feeder and tunnel conveyor, front-end loader or clamshell. The new Sauerman torque converter diesel-hoist automatically matches power to load demands and is designed for continuous duty. Fluid drive cushions out shock loads to reduce fuel and maintenance costs, extend cable life.

Increasing land values and depleting resources make it necessary to get all the material out of your deposit. You can do this with a Sauerman Slackline. The machine will dig from ground level to deep under water and keep your plant running additional years at the lowest possible operating cost. Several pits are now operating Slacklines on 1000-ft. spans with average hauls of 500 to 700 ft. and from 100-ft. depths.

Write or call, giving your tonnage requirements, depth and length of deposit—if available. We will promptly supply more information on Slackline Cableways, and show you how to *save with a Sauerman.*

SAUERMAN BROS., INC. 632 SO. 28th AVE. BELLWOOD, ILL.
Linden 4-4892 • Cable CABEX—Bellwood, Illinois

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LETTER FROM TORONTO

Transportation plan that includes new subways helps spark the growth.

Toronto: Growth with Speed and

By James Montagnes

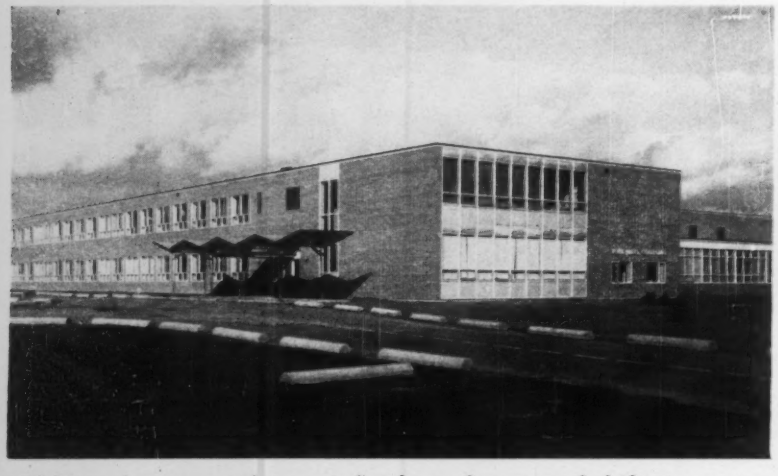
The face of Toronto is changing. Over the past ten years the city has evolved from a slow-growth community of 1.05-million to a fast expanding metropolitan complex with a 1.5-million population that is increasing at about 50,000 per year.

James Montagnes, journalist commentator on the Canadian scene, has been ENR's Toronto correspondent for many years.

Careful but imaginative planning is the key to Toronto's success. The emphasis has been on spreading the city's growth outward without sprawl, avoiding a choaked downtown area and tieing new growth areas together with an efficient rapid transit system.

The city's natural port, newly expanded, and an air terminal construction program are attractive assets that have brought new light and heavy industry to the area. In addition, metropolitan Toronto is drawing increased numbers of commercial firms and headquarters offices of companies from both home and abroad.

Since Canada's first municipally owned rapid-transit subway was opened at Toronto in 1954, the area along its 4½ miles under Yonge Street has



Buildings, here a north area school, mark outward shift.

And building for sports, too,

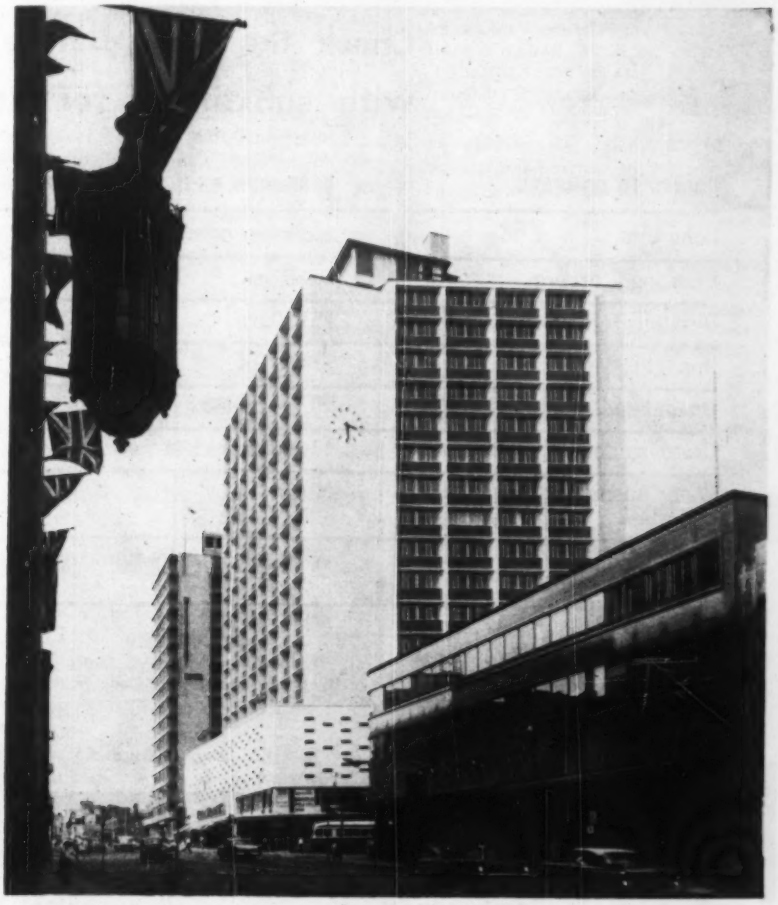
Growing highway systems feed traffic through the expanding metropolitan area.

Balance

changed drastically in appearance. Blocks of new office and apartment buildings have been constructed and residential districts along or adjacent to the route have become mainly commercial.

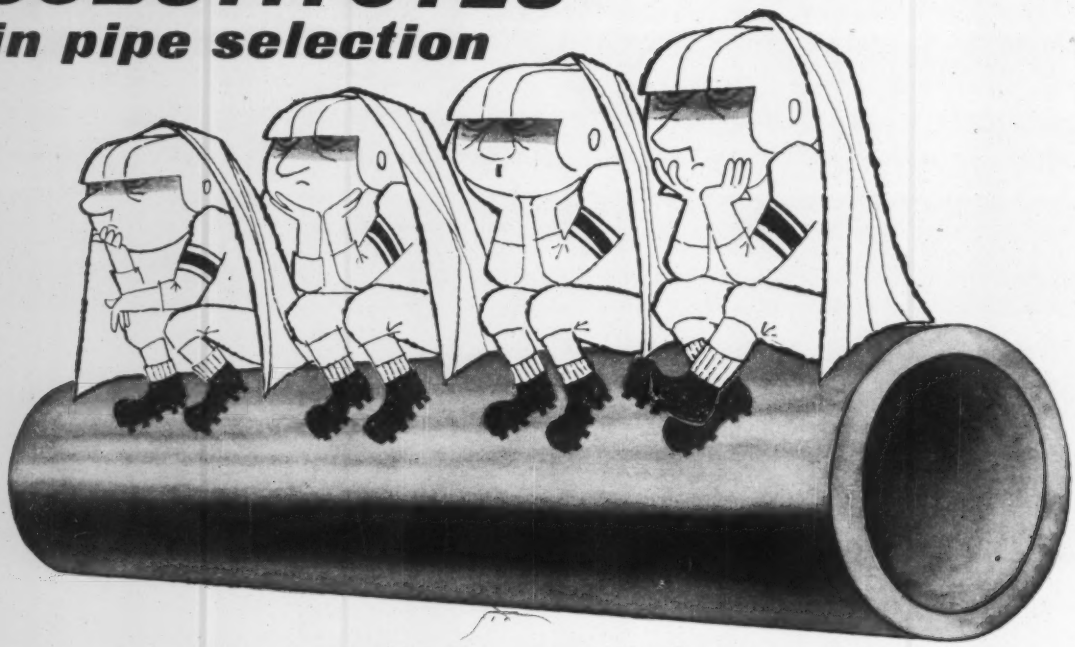
At the northern terminus of the subway system, entire city blocks have been torn down and replaced with office buildings and apartments ranging from eight to twelve stories in height. Busi-

testifies there's a boom.



Downtown reflects the activity with new office buildings.

no place for **SUBSTITUTES** *in pipe selection*



Check the score before experimenting with substitutes for cast iron pipe!

POINTS TO COMPARE	CAST IRON PIPE	SUBSTITUTE PIPE
Long Life	100 Years or more	?
Bursting Pressure	2,988 psi	746 psi
Bursting Tensile	25,880 psi	3,430 psi
Impact Resistance	234 ft. lbs.	60 ft. lbs.
Beam Loads (12-foot span)	20,790 pounds	3,060 pounds
Crushing Loads	17,900 lbs. per ft.	6,480 lbs. per ft.
Water Absorption	None	9.8% of weight after 24-hour submersion
Tight Joints	Wide selection for liquid or gas service	Limited selection for water service
Inside Diameter	6.14″	5.85″

Pipe tested were 6″ Class 150.

AMERICAN
CAST IRON PIPE CO.
BIRMINGHAM ALABAMA

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Birmingham

ness has moved from the downtown area to this new commercial section along Eglinton Ave. For almost a mile from the northern subway terminus, new office buildings are under construction or have been recently completed. Even the Toronto Transit Commission has moved its headquarters from downtown to a new six-story building astride a subway station one stop from the northern subway terminus.

Numerous new apartment blocks have been erected, the largest being Brentwood Towers, a block of five 16-story apartment buildings each with about 250 suites, and almost all with outside balconies. In all these apartment buildings, parking is provided underground. The apartments are occupied principally by office workers who use the subway system to and from downtown business districts.

This activity along the subway route is only a small portion of the construction in the metropolitan Toronto area over the past few years. Last year construction in this area amounted to $473.6 million, and in 1958 to $610.2 million. Since the opening of the subway system almost $3 billion has been spent on construction in the metropolitan Toronto area. And this metropolitan area has expanded, too. It now covers 240 square miles.

The dollar total includes commercial, industrial and residential building and such municipal undertakings as expressways, sewage and water treatment plants, river conservation projects, schools, hospital and welfare housing projects. The metropolitan Toronto government alone has a ten-year capital works program of over $1 billion. It includes a second $200 million ten-mile section of the subway system, now under construction to provide an east-west system under Danforth Ave. and Bloor St.

The metropolitan area is bounded on the south by Lake Ontario, where a string of islands forms a natural harbor and parkland area close to the business and financial district. Toronto is a major seaport on the Great Lakes and probably has the heaviest overseas ship traffic of any port along the route of the St. Lawrence Seaway. Part of the recent construction boom has been on the waterfront, where new terminal sheds and industrial buildings have been erected on reclaimed land during the past two years. An estimated $15 million will be spent over the next few years on more dock and terminal space.

Major municipal construction jobs currently under way are the $100-million Frederick G. Gardiner elevated expressway along the Lake Ontario waterfront from the west end of the city to its center, a 10-mile Don Valley Parkway from the Gardiner expressway northward through ravines to the northeastern suburban area. Numerous water mains and trunk sewers, as well as three large sewage disposal plants and a pumping station are going in to keep pace with the city's growth. A number of welfare and low-cost rental housing projects and an educational center and a number of new schools indicate the city's balanced development plans.

Construction bids will be taken late this year or early next year for the new $20-million Toronto City Hall, design for which was won in a world-wide competition by Finnish architect Viljo Revell (ENR Oct. 23, 1958, p. 24). The structure consists of two curved buildings of 32- and 26-stories and a central four-story council chamber between the two tall office buildings. There will be no windows on the outside walls of these two buildings; windows will only be used in the inward facing walls. The new City Hall will go up in space that was formerly Toronto's Chinatown, and will have landscaped park and fountains at its front entrance.

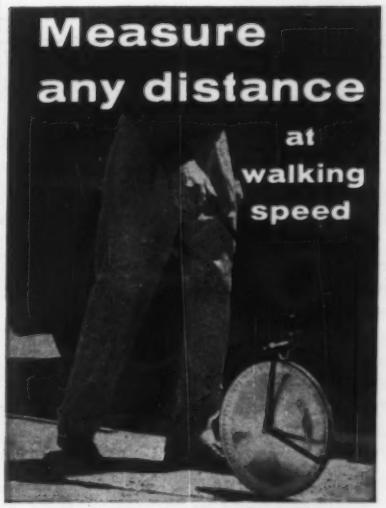
Immediately in front of the new City Hall site is a municipal underground garage for 3,000 cars. It was completed last year.

A $50-million expansion of the University of Toronto—not financed by the municipality—includes new scholastic, research and residential buildings in the central part of the city. Work on a number of buildings, including one for the faculty of engineering, is now under way.

Large additions to Toronto's various hospitals have recently been completed and more are currently under construction, including a number of buildings of more than 10 stories.

Malton airport is having a new $23 million terminal built at present. It is a doughnut-shaped design to provide simultaneous loading and unloading of 10 jet aircraft. The building has all facilities for international passenger handling, including restaurants and shops and indoor car parking. The control tower is in a separate structure. Four such doughnut-shaped terminals are to built by 1970. New two-mile long runways are also under construction by the Canadian Department of Transport.

The Ontario Hydro-Electric Power Commission is building the world's largest thermal power station on the western edge of the metropolitan Toronto area at a cost of $250 million. This is to be completed by 1965 and will have a capacity of 1.8 million kilowatts from six units, first of which is



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Shows Inches, and Fractions of an inch. Wheel is calibrated in inches and fractions for quick easy reading.

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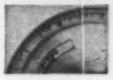

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Rolatape
Measuring Wheels

to be in operation in 1961. Currently about 1,200 men are employed on the job. This power plant on Lake Ontario shore is in addition to a large coal-fired power plant recently completed by the Ontario Hydro-Electric Power Commission on the Toronto waterfront.

Throughout the metropolitan area new commercial and industrial buildings are under construction. The Metropolitan Toronto Industrial Commission reported that last year 33 new industries from the U. S. and western Europe located in the Toronto area, requiring new factories. A number of British and U.S. insurance companies have built or are constructing new offices in or close to the downtown area.

Commercial construction currently under way in the downtown area includes completion of a 20-story office building in the financial district. An early start is expected on another large office building nearby. A new 600-car indoor parking garage for a department store, and a 12-story bank building adjacent to the garage are going up, too.

Satellite communities within and just bordering the metropolitan area have large apartment buildings as well as office buildings and light industrial plants under construction. These communities are also busy with construction of shopping centers and homes.

In a 20-year master plan released earlier this year, the Metropolitan Toronto Area Planning Board anticipated that the population for Toronto and its immediate area would increase from today's total of nearly 1,750,000 to almost 3,000,000 by 1980, based on current growth of about 50,000 a year. Toronto accounts for about one-tenth of Canada's population and the same ratio is expected in 20 years.

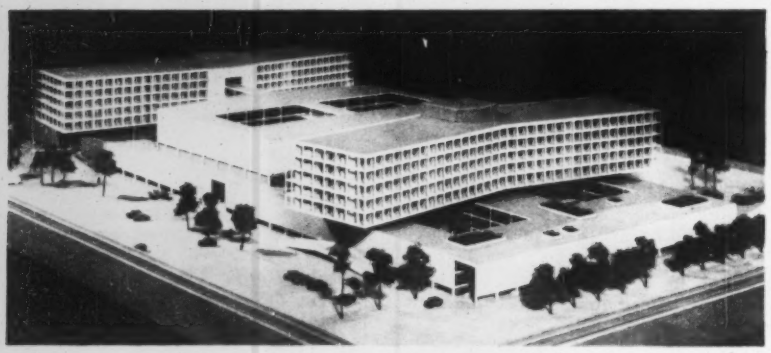
Toronto till recently had been a city of single family homes. But apartment buildings, small and large, have been growing in numbers over recent years. By 1980 apartment buildings are expected to constitute 22% of Toronto housing space. This will include municipally-financed low-rental apartment blocks for lower wage earners and elderly people.

The master plan also forecasts that more classrooms will have to be built in the next 20 years than have been built in the Toronto area in the past 130 years. Some 11,500 additional classrooms are planned, as against the 10,024 now in use.

The plan also anticipates a system of five east-west and four north-south expressways by 1980, increasing 70-mph expressway mileage from the present 82 to 203. In addition, the rapid-transit subway system is expected to increase by that time from the present 4½ miles plus 10 miles now under construction to a total of 37 miles. Streetcars will be off the streets by that time and high speed express buses, trolley coaches and local buses will feed into the rapid-transit subway system. Planned also are diesel-engined suburban trains for use during rush hours.

Metropolitan planners expect that the suburban communities will increase their industrial growth and cease to be merely dormitories for workers commuting daily to their jobs in other sections of the city. Already the trend is noticeable toward developments combining light and heavy industry with commercial buildings in the new suburban communities.

Total assessment in metropolitan Toronto at present is $3.5 billion with per capita assessment at $2,351. By 1980 total assessment is expected to be $6.4 billion and per capita assessment $2,778. The ratio of taxes is expected to remain about the same as at present, 53% on residential buildings and 47% on non-residential property.



Hospital For West Berlin Coming

Construction will begin early next year on a $32-million, 1,500-bed medical center for the Free University of Berlin.

The project was conceived in 1958 by a U. S.-German team headed by Architect Ralph Walker, then chairman of the Benjamin Franklin Foundation, which will administer all funds collected for the purpose.

No new hospital has been built in the former German capital for the last 50 years.

The planned hospital will spread over 44½ acres. The clinic will be a 328 x 820-ft, windowless block built around six patios. Two five-story nursing wings, 390 x 82 ft, and containing 20 wards, also will be occupied by the clinic. Other hospital buildings scheduled for construction are a three-story operation building built around two patios, a laboratory building, a two-floor faculty building, a two-story service wing, and a nurses school and dormitory.

A team of U. S. and German architects designed the project. They are: Curtis & Davis of New Orleans, La., Sherlock, Smith & Adams of Montgomery, Ala., and Franz Mocken of Berlin.

Funds for the hospital are coming from the U.S. government ($14.5 million), the German government ($10 million), and the Berlin municipality $7.5 million).

Foes Threaten High-Cost Scottish Hydro Proposal

A newly proposed Scottish hydropower project is running into stiff opposition in Parliament as "unusually expensive and extravagant."

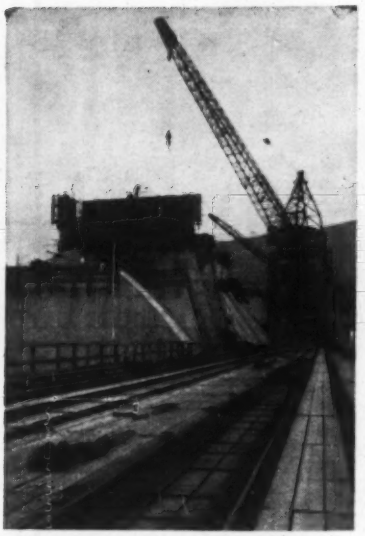
The North of Scotland Hydro-Electric Board announced plans early in October to build a 240-ft-high dam and a 25,000-kw power plant on the Glen Navis River at a cost of $11.8 million.

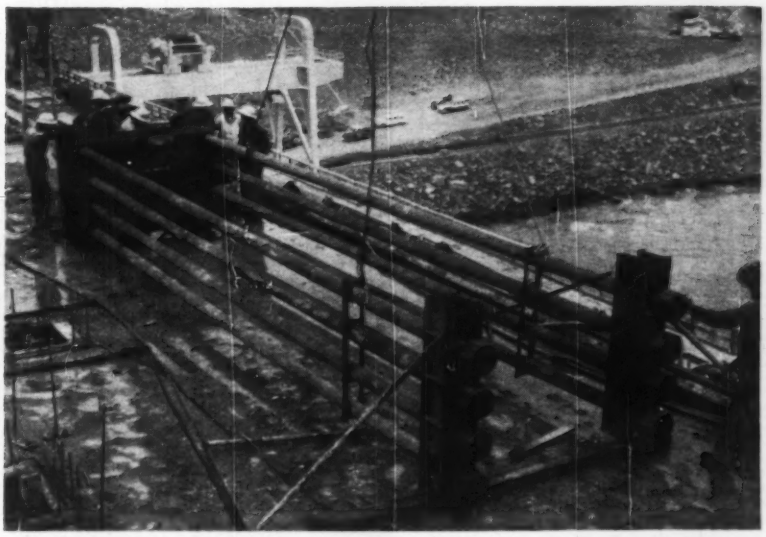
The project's per-installed-kilowatt cost of $470 drew immediate fire. One Conservative opponent said, "The Central Electricity Generating Board currently installs generating sets for $108 per kilowatt." His figure is based on the use of low-grade, high-ash coal, of which the National Coal Board has a 35-million-ton surplus.

A spokesman for the Scottish Board said that $470 per kilowatt is average for hydraulic power.

Besides the dam, designed as a reinforced concrete gravity and arch structure, the project would include a five-mile concrete-lined power tunnel, underground powerhouse, three miles of additional tunnels and aqueducts.

If the proposal survives present opposition, it will go before Parliament for approval next spring.



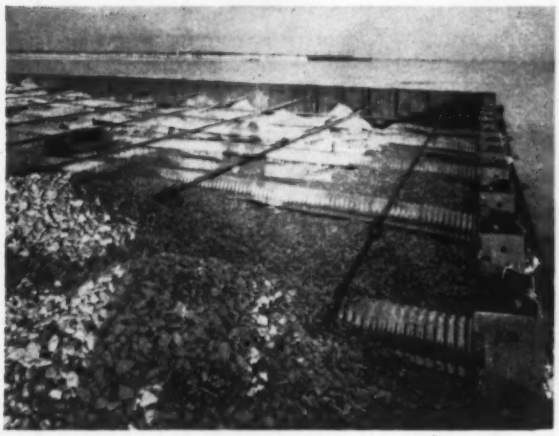


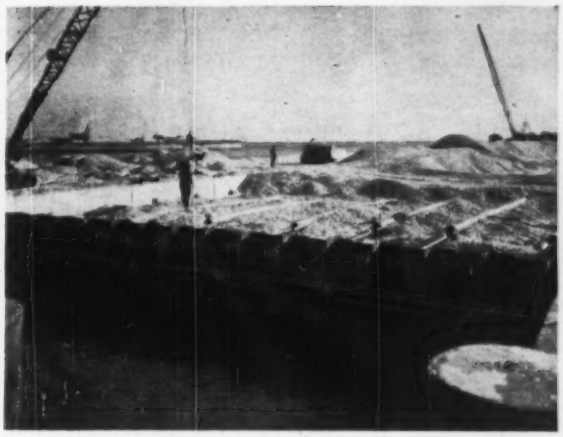
GIGANTIC UPSET ANCHOR BOLTS, some of the world's largest, secure 8 tainter gate assemblies in this mile-long, 400,000 kw capability, hydroelectric power project. Imbedded and anchored in concrete, these tension bolts absorb tremendous gate thrust load from upstream water pressure, as their projecting threaded ends secure the gate-supporting bearings.

Noxon Rapids Dam, Sanders County, Montana
The Washington Water Power Co., Morrison-Knudsen, Contractor

FURNISHED COMPLETE BY COMMERCIAL these ton-weight bolts are 33½ feet long, 5½ inches in diameter. Ends are upset to 6¼ in. diameter for a length of 9 inches. Both headed ends are threaded—one end receives the deadman anchor sleeve to be buried in concrete—the other end takes a hex nut to secure the gate bearing. At no sacrifice of strength, upset heading saves 750 lbs. of steel—28%—on each bolt.

How to anchor big jobs!





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CHANNEL WALES COMPLETE with spacers, washers and nuts, reinforce latest Chicago lakefront land fill. COMMERCIAL double-channel wales span the entire facade of the future exposition hall site. Separated by 3¾" pipe spacers, two 12" channel wales furnished in 10 ft. sections are spliced into a continuous reinforcement for the vertical steel pilings. Loads and stresses due to extensive fill on one side and wave action on the other are stabilized.

You'll find COMMERCIAL the top "one-source" for wales, tie rods, large anchor bolts, special fasteners, handrail and curbing for heavy construction. Write to Commercial Shearing & Stamping Company, Dept. E-47, Youngstown 1, Ohio.

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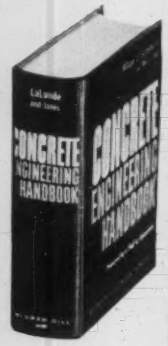

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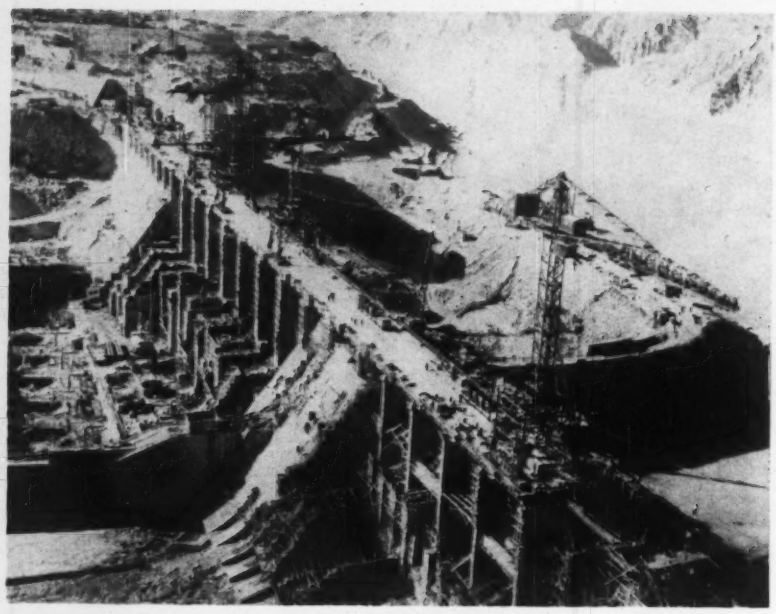

Russian-made cranes speed concreting as . . .

Chinese Dam Races Floods

Concrete pouring is going on round-the-clock in the Red Chinese push to bring their Sanmen Gorge Dam on the Yellow River to design height. According to latest reports, completion of the 350-ft-high, 3,191-ft long dam will free 80 million people from the danger of floods.

The Sanmen Gorge project is said to be the biggest in a 46-dam complex on the Yellow River. Built with Russian aid and know-how, 1.3 million cu yd of concrete and 6,500 tons of steel had gone into the project as of last December.

Work began in 1957 and was scheduled to take six years. At the current rate of progress, however, Peiping reports that the project will be completed in 1962. "Technical innovations" of the workers account for the quick work, says the Peiping government.

The Sanmen Gorge project will supply 1-million kw of power to industrial cities in Shensi, Honan, and Shansi Provinces.

Alberta Penstock Is T-1 Steel

A 1,366-ft section of penstock made of T-1 steel was completed in the Province of Alberta, Canada, marking the first use of T-1 for a hydro penstock in the Western Hemisphere.

Dominion Bridge Co. Ltd., Montreal, built the 8-ft 6-in. pipe as part of the Spray-Rundle extension project. Aimed at doubling the capacities of two plants, the 46,000-kw Spray generating station and the 17,000-kw Rundle plant, the extension project cost Calgary Power Ltd., about $7 million.

Besides the T-1, the 2,600 ft of power tube and penstock includes nearly 1,000 ft of wood stave pipeline and 235 ft of rock-enclosed pressure tunnel.

Dominion Bridge used the special steel because of its high yield strength, which permitted higher working stresses and attendant weight reductions.

The extremely rugged terrain made any reduction in weight of paramount importance and T-1's high yield at low temperatures was another convincing factor. According to Calgary Power, recent tests of welded vessels of ½-in. T-1 plate withstood stresses up to 136,000 psi even when chilled to 45 deg below zero.

The use of T-1 on a remote penstock job is not all peaches and cream. The chemistry and heat treatment from which the metal gets its strength and toughness require careful processing. A Brinnel hardness nearly twice that of ordinary mild steel makes necessary special fabricating techniques for flame cutting, rolling and welding.

Prior to construction an extensive research program was instituted to study such factors as electrode type, submerged arc filler wire and flux materials, moisture, groove geometry, restraint and

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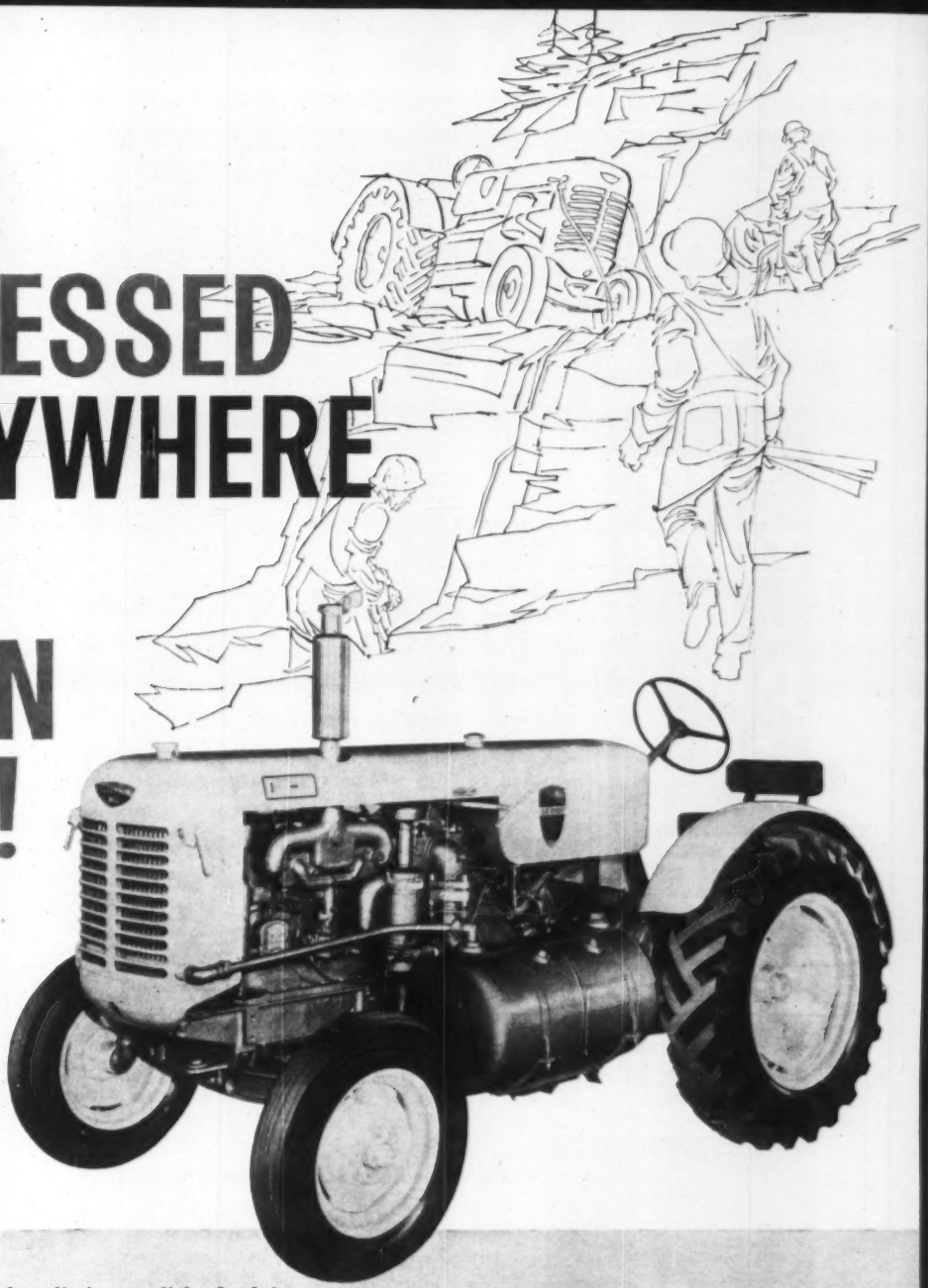

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welding position, and general welding procedures.

This research plus careful control over all phases of the operation paid off in the field and in the shop. For example, the severe weather conditions were cause for a preheating scheme with controlled temperature and field shelters to protect the operators and the work from the elements.

In the fabricating shop, Dominion Bridge practiced rigid quality control. The seams of every penstock "can" were X-rayed, whether made in the shop or in the field, and all fillet welds were inspected by magnaflux. Test plates were made at regular intervals. From them mechanical tests were performed to prove quality.

All welders were specially trained for this exacting work and were qualified under the requirements of the ASME code for all-position welding before being put on the Spray project.

Canadian Utility Finishes Bridge River Hydro Plant

British Columbia Electric's 264,000-kw Bridge River No. 2 station is now in service. Its completion marks the end of a 14-year construction effort.

Part of the Bridge River scheme, the new plant brings to some 500,000 kw the total developed power potential of the Bridge River area.

The river empties into Seton Lake, dropping 1,200 feet in its last three miles. Two power tunnels—13,200 ft long and 12,700 ft long—divert part of the flow from this section into Bridge River No. 1 and No. 2 powerhouses, located on Seton Lake a half mile from each other.

Two earthfill dams—287-ft-high La Joie and 188-ft-high Mission—and two smaller power plants complete the power scheme.

Dutch Subway Construction Starts as Canal Project

Rotterdam has started work on Holland's first subway by digging another canal.

Instead of tunneling through the soft clay under the city, builders will excavate deep trenches that will fill rapidly with ground and river water. Then they will construct a three-mile, $34-million subway as a trench tunnel by floating pre-fabricated concrete sections into place.

The new subway line will link downtown Rotterdam with rapidly expanding residential areas south of the Meuse River. The line will have seven stops. Completion is scheduled for some time in 1965.

Lead on the Waterfront
Shielding Steel from Corrosion

Lead-silver anodes for impressed current cathodic protection systems are finding wide favor for sheet pile bulkheads, bridges, condenser boxes, ships and other steel structures exposed to salt and brackish water corrosion.

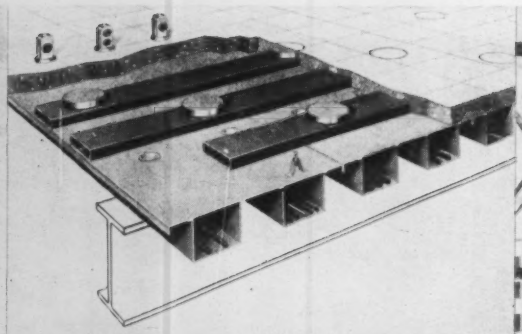
Yielding highly efficient results at low cost, lead-silver anodes are sturdier than other generally used materials, and they stand up through impact and rough handling during shipment.

The anode's capability for building up a hard conductive protective coating, which prolongs its life without appreciably reducing current capacity, is evidenced by the following test figures from an installation on a New York City pier. Where original anode diameter was one inch, under applied current of 40 amps —at the end of 12 months' exposure under extremely adverse conditions, diameter of the metal anode exclusive of coating was still 15/16 of an inch—resultant fractional loss was .088 pounds per ampere year, which is equivalent to virtual insolubility in such cases.

For detailed techical data on how lead alloy anodes can be of service to you, contact the Lead Industries Association, 292 Madison Avenue, New York 17, N.Y.

LOOK AHEAD WITH LEAD

2728



Sectional view of typical M-Floor construction: This electrified steel cellular floor, using M2-4.5 sections, is energized from a three-header duct electrical distribution system. M-Floor installation is easy—electrical wiring is quick—future is built-in.

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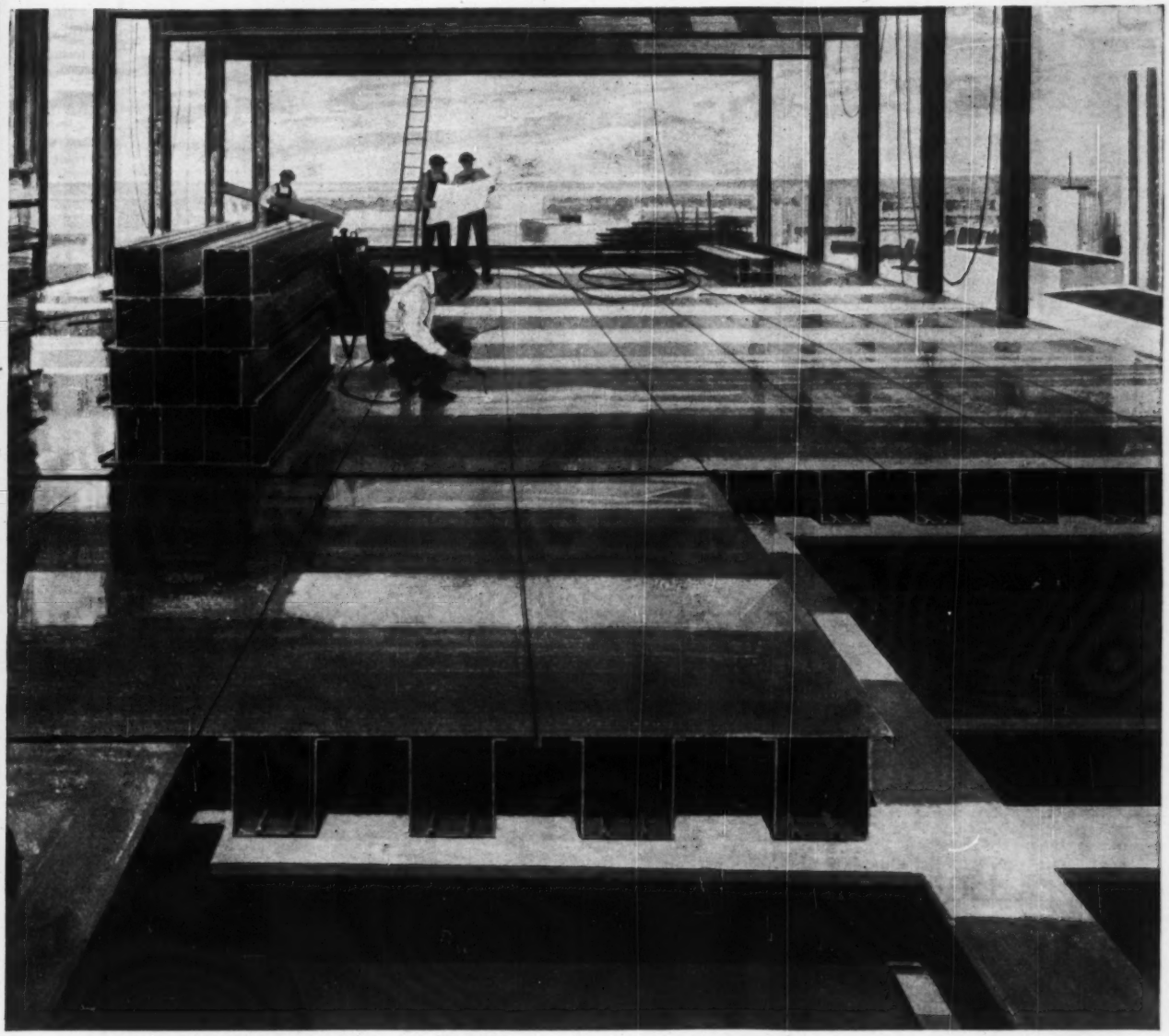
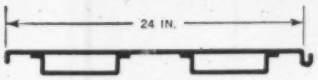
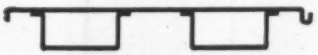


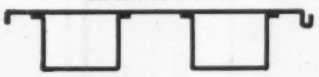
MAHON M-FLOOR SECTIONS



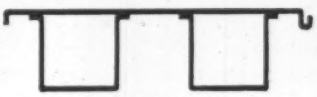
SECTION M2-1.5
CEL-BEAM DEPTH 1½ IN.



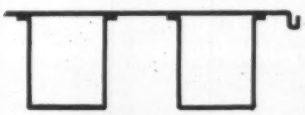
SECTION M2-3
CEL-BEAM DEPTH 3 IN.



SECTION M2-4.5
CEL-BEAM DEPTH 4½ IN.



SECTION M2-6
CEL-BEAM DEPTH 6 IN.



SECTION M2-7.5
CEL-BEAM DEPTH 7½ IN.

Note: These M-Floor Sections are also available with cell elements having integral stiffening ribs for improved section properties.

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Let it sleet, let it ice, let it blow— there are "summer sidewalks" in winter's snow

In Madison, Wisconsin, with its average winter temperature of 21°F. and snowfall of 39 inches, it takes a lot of manpower to keep sidewalks safe and clean in winter. At the new State Office Building in Madison, public interest required the efficient and prompt removal of snow and ice from the building's 12-foot sidewalk.

The solution was simple—install a *steel pipe* snow melting system. Now, whatever the weather outside, the sidewalks are summer safe, free of ice and snow. And inside, lobby floors and corridors need no hour-to-hour cleanup of tracked-in dirt.

Snow melting and ice removal are only two of the many jobs which *steel pipe* can do better and more easily. *Steel pipe* has "built-in" strength and dimensional stability; it's economical, easily bent and weldable. Because *steel pipe* offers more for less it is the most widely used tubular product in the world for heating and cooling, for refrigeration and ice making, for water, air and gas lines, for vent and drainage lines, and for fire sprinkler and electrical conduit systems.

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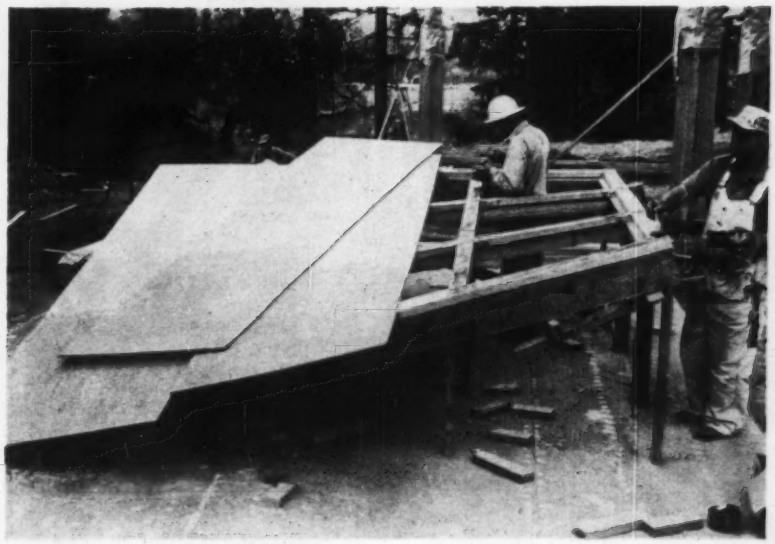

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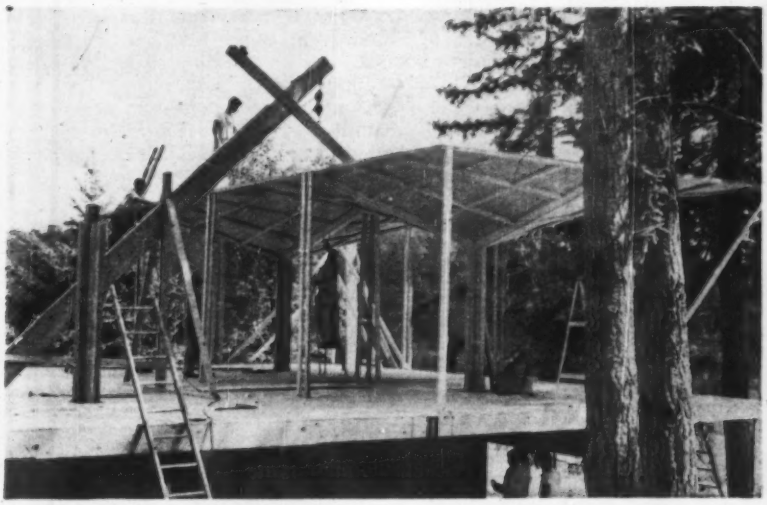

. . . Building H-P Roof for House

A special jig designed by builder Eric Pearson warps the timber hyperbolic paraboloid roof section for construction of a Wood Products Research House in Bellevue, Wash.

The carpenters from the basic framing of the H-P sections with 2 x 4's and 2 x 6's, laid flat. They then glue and nail the plywood surfacing to these framing members.

Each umbrella roof unit comprises four warped surfaces, built one on top of the other in the jig. The completed roof will be of four such units, each supported by a central laminated wood column, pierced by a rainwater conductor.

Architect Paul Hayden Kirk designed the roof structure for fabrication either on the jobsite or in a shop.

The experimental house also features timber floor panels cantilevered 10 ft out from each of the four central columns.

The house is part of the Basic Materials and Design Program organized by LIVING FOR YOUNG HOMEMAKERS magazine and co-sponsored by the Weyerhaeuser Co. of St. Paul, Minn., and the Andersen Corp. of Bayport, Minn.

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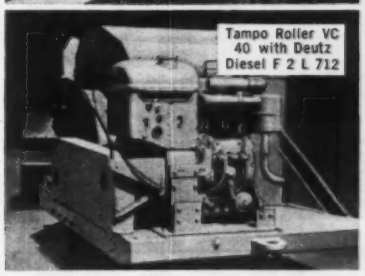

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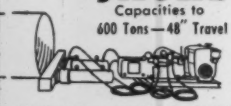

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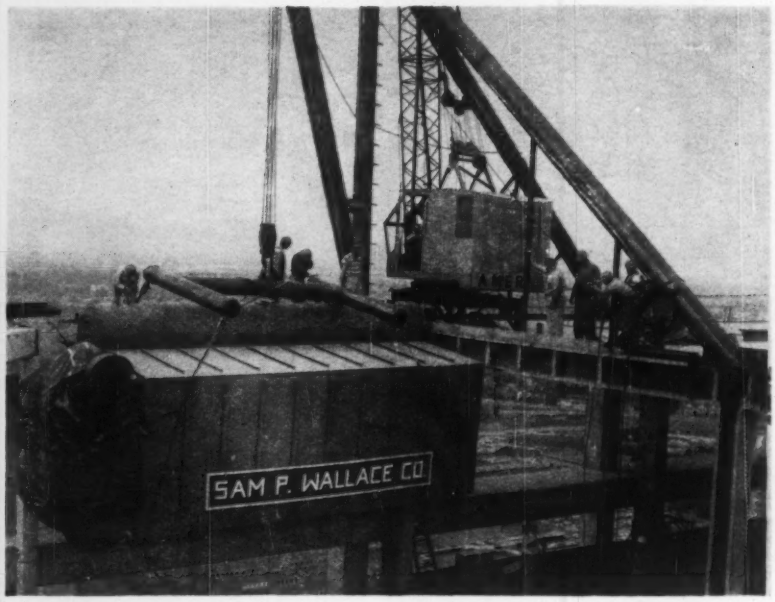


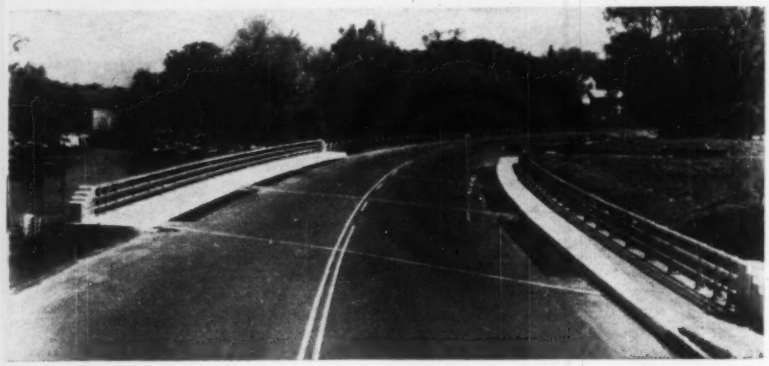
High Lift for Big Boiler

Hoisting a 38-ton boiler 410 ft to the top of a steel-framed, 29-story building in Houston required a specially-designed stiff-legged derrick.

Main members of the derrick—boom, mast, and stiff legs—as well as the picking frame were made of 18-in. pipe. Smaller sections brace these members.

A 200-hp converted diesel engine hoisted the boiler to the roof. Wire rope, ¾ in. dia, was rigged on a six-part set-up to make the lift.

Contractor for the hoist work was Sam P. Wallace Co., Houston mechanical contracting firm. Joe D. Sumner was project manager.



Bridge Rails from Aluminized Steel

New York state is using standardized sections of aluminum-coated welded steel tubing for bridge railings. It is corrosion-resistant and absorbs a high degree of impact shock.

The unique feature of the rails is the standard size. When a rail is bent or marred by a collision, it can be easily replaced from standard stock sizes. The damaged rail can be repaired, re-aluminized, repainted and used again.

C. F. Blanchard, Deputy Chief Engineer, New York Department of Public Works, reports that the initial cost of aluminized welded steel tube rails is competitive with other railing sections that could be used, but that long-term economies are in low maintenance.

Other coatings, such as galvanized, are used on other New York bridge and highway railings. Type used is determined by the location of the bridge and the type and degree of corrosion that will be encountered.

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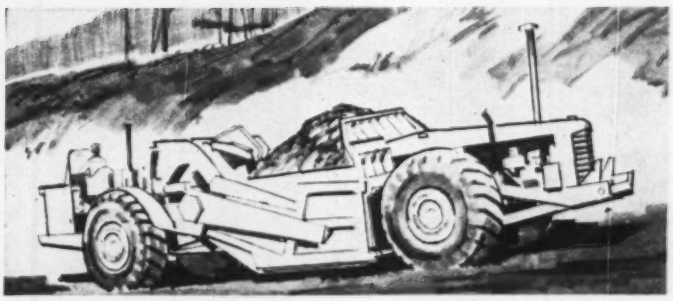
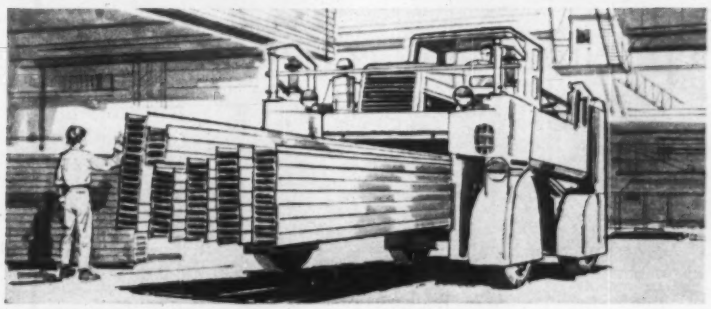
smooths out starts
TORQMATICALLY



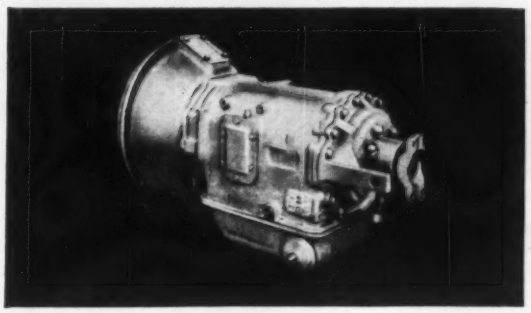
IN 14-YARD SCRAPERS

"Twin Power"—made possible by twin Allison CT-3340 TORQMATIC DRIVES in this Euclid TS-14 scraper—makes every operation smoother. Production is as much as 100% higher, cost per yard 50% less, than for scrapers pulled by tractors.



IN STRADDLE CARRIERS

"Easy Does It" for 30-Ton Loads—Equipped with an Allison CT-3340 TORQMATIC DRIVE, this Gerlinger Material Handler starts 20- and 30-ton loads slick as a whistle for an Eastern steel producer. Unit works 24 hours a day, five days a week, has cut steel handling costs 50%.



IN ANY 125-175 H.P. UNIT

Small off-highway trucks, fire trucks, airport tow tractors, graders—a whole long list of equipment becomes better equipment with an Allison CT-3340 TORQMATIC DRIVE.

This torque converter-hydraulic transmission team has 4 speeds forward, 2 reverse—converter-driven PTO—drive line parking brake—full power shifts at all speeds—optional lockup clutch—can be direct or remote engine mounted.

Want more information? Send for the fact-packed CT-3340 brochure today.

Allison TORQMATIC®DRIVES

The world's most complete line of hydraulic drives

Over 980 Models Used by 108 Manufacturers in 100 to 525 H.P. Equipment

Allison Division of General Motors
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Please send me application data on your CT-3340 TORQMATIC DRIVE.

Name_____

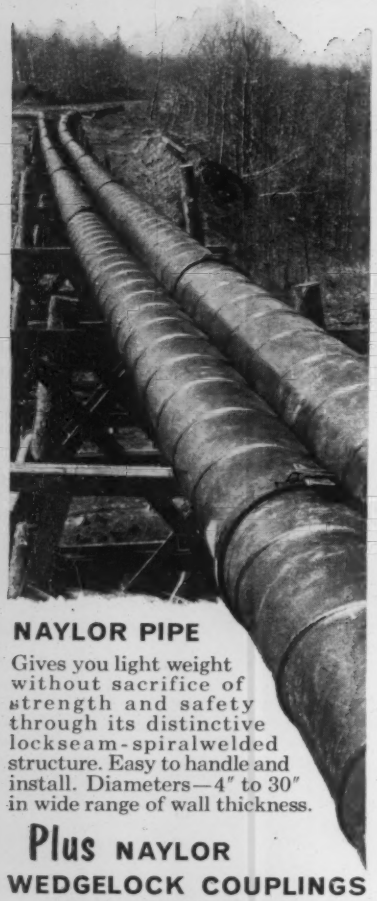
Title_____

Company_____

Address_____

City_____ State_____

RIGHT COMBINATION
FOR YOUR
AIR and WATER LINES



NAYLOR PIPE
Gives you light weight without sacrifice of strength and safety through its distinctive lockseam-spiralwelded structure. Easy to handle and install. Diameters—4″ to 30″ in wide range of wall thickness.

Plus NAYLOR WEDGELOCK COUPLINGS

A positive connection, securely anchored in the standard weight grooved ends. A hammer is the only tool required to connect or disconnect it. Available in both low-pressure and heavy-duty types.

Write for Bulletin No. 59 on pipe, fittings and couplings.

NAYLOR PIPE Company

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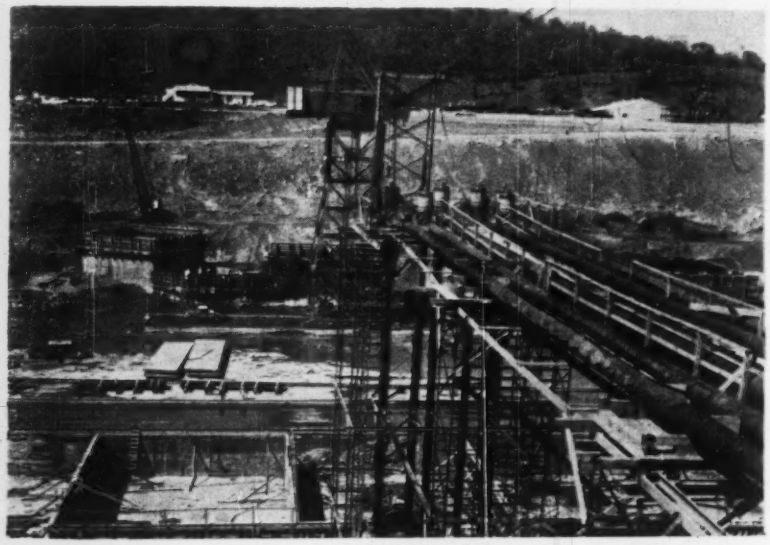


Keep Your Cofferdam Dry . . .

. . . Or Save It Under Water

In constructing the Captain Anthony Meldahl locks and dam on the Ohio River, the contractor, Groves Ventures, Inc., of Minneapolis, figured a neat way to contend with both substantial seepage under a cofferdam and the annual spring flood.

He set up a pumping system capable of dewatering a completely flooded site and mounted the system atop a 75-ft tower—high enough to be above water at flood stage. During the two-month high water season he flooded the construction site to protect the cofferdam, then later dewatered the area with the pumps, sitting high and dry on the tower. The rest of the year the pumps handle seepage.

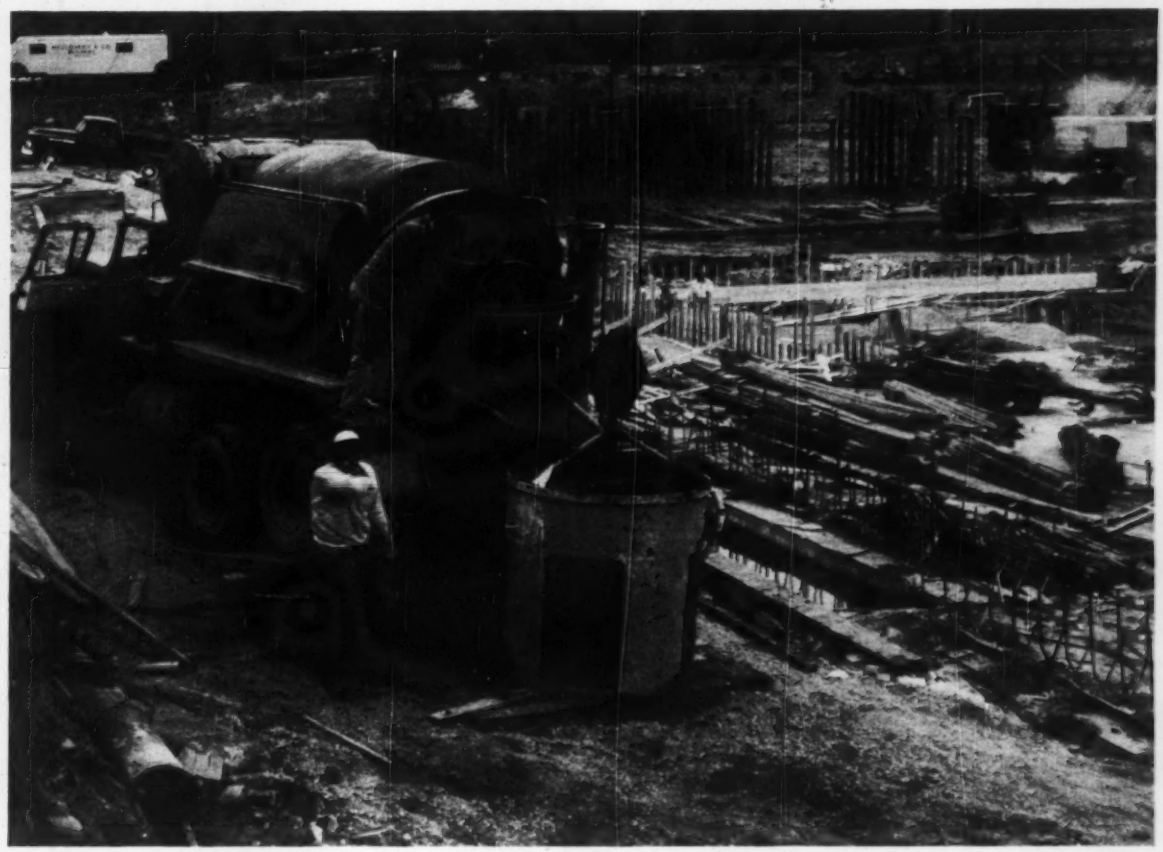
Six electrically driven pumps and the same number of 14-in. discharge pipes are supported by the tower. The tower is reached from the cofferdam by a 134-ft-long platform.

The load on the main tower is estimated at 60,000 lb, made up of pumps, pipe and water. The entire structure, including steel for floors and bracing, was designed and furnished by Waco Mfg. Co., Cleveland.

The Meldahl locks and dam will replace four outmoded locks and dams on the Ohio River. One main lock will be 110 ft wide and 1,200 ft long.

The dam will be a gated-crest, nonnavigable structure consisting of 12 gates—each 37 ft high by 100 ft long and situated between 14-ft-wide intermediate piers.

Plans call for filling or emptying each lock chamber in eight minutes.



When temperatures drop, Columbia Calcium Chloride in the mix keeps concrete jobs moving.

TEMPERATURE: 48°F JOB: ON SCHEDULE

with Columbia Calcium Chloride in the mix

Faced with winter concreting and a time-tight schedule? Columbia Calcium Chloride in the mix any time the temperature drops below 70°F helps prevent lag in strength gain. Your jobs keep *moving* in spite of low temperatures. You get these specific time-and-money-saving benefits:

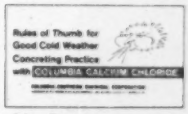
Higher Early Strength—At 40°F, the strength of Columbia Calcium Chloride treated concrete is as great in 1 day as untreated concrete is in 2 days. At 3 days, the strength is equal to 7-day strength of untreated concrete.

Faster Initial Set—Under normal conditions, Columbia Calcium Chloride reduces initial set from 3 hours to 1 hour. At lower temperatures, the accelerating effects are even more pronounced. You get finishers on and off the job faster, avoid costly overtime.

Early Form Removal—The use of Columbia Calcium Chloride means forms can be moved faster. Total time required for the job is cut.

Get all these Columbia Calcium Chloride cold weather benefits on your next job. Just add Columbia Calcium Chloride at the rate of 2% by weight of cement. Want technical help? Our calcium chloride engineers are at your service. For their assistance, just contact our District Sales Office nearest you or write to our Pittsburgh Office.

FREE—Write for free folder: "Rules of Thumb for Good Cold Weather Concreting Practice."



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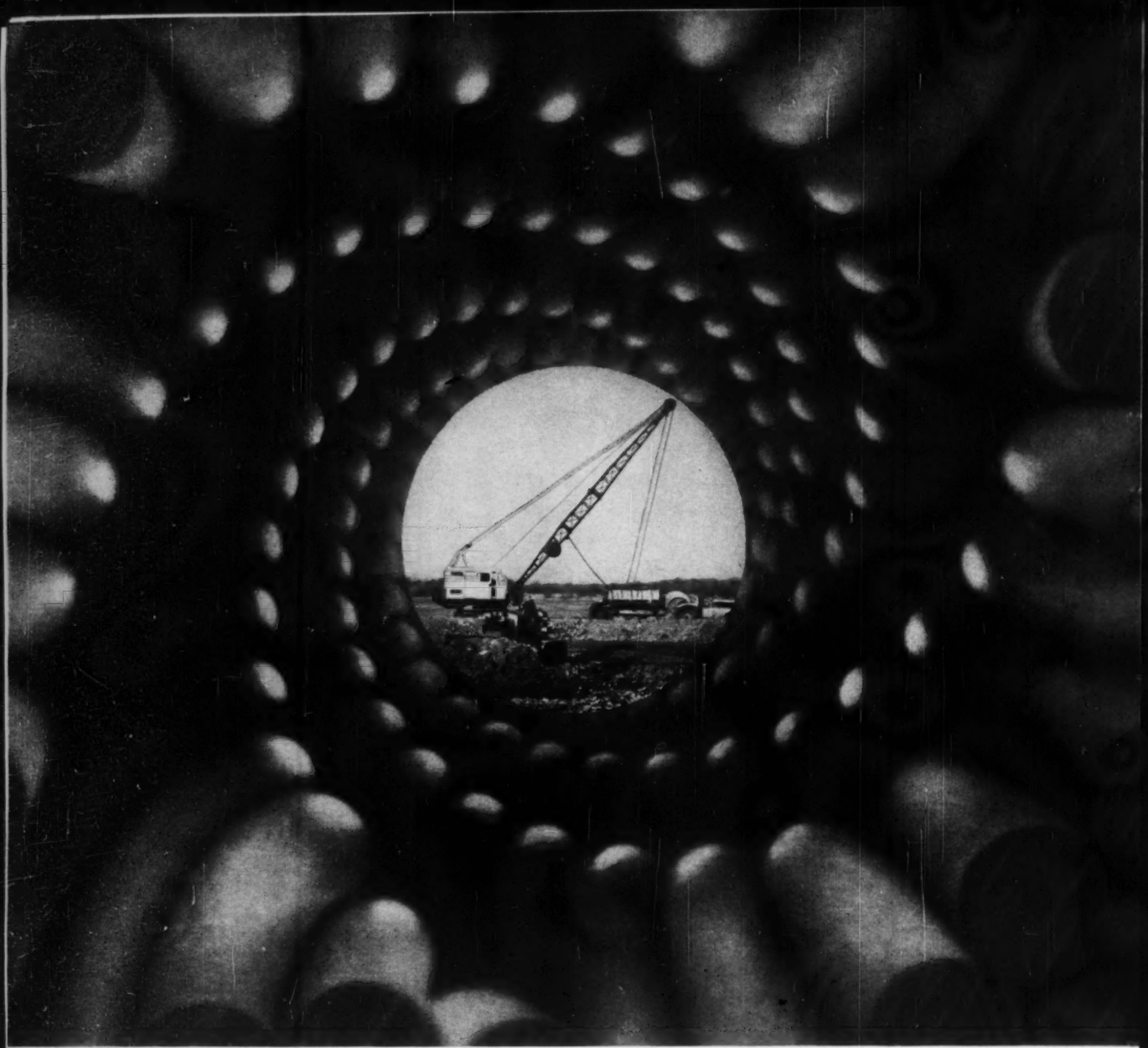
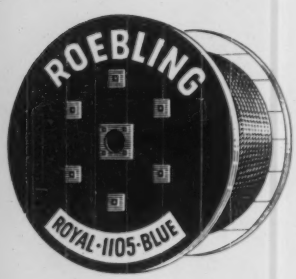


ROEBLING ROYAL BLUE WIRE ROPE

WE PUT A LOT OF WORK INTO IT—YOU GET A LOT OF WORK OUT OF IT



This happens to be the inside view of Roebling Royal Blue — its core has been removed to show the uniformity and symmetry of the rope structure. You see how concerned we are with internal security.

We have to be. To make sure that Royal Blue will live up to the day-to-day demands made upon it. High stresses and unavoidable overloads, abrasion, fatigue, impact, crushing, sheave pressures and abusive drum-winding, to name the major ones.

Royal Blue goes through many inspections and tests—both internal and external —before reporting to work. This way we're sure that the rope we build will do what we sell it to do. These quality-control measures are your assurance that Royal Blue is made to save you money — anyway you look at it.

For details about hard-working Royal Blue, ask your wire rope distributor or write Roebling's Wire Rope Division, Trenton 2, New Jersey.

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Bridge Rebuilt With Composite Design

Conversion to composite construction during replacement of a concrete slab roadway increased the load carrying capacity of an Illinois bridge at slight additional cost.

The 1,500-ft steel plate girder, Burr Oak Avenue Viaduct in Blue Island, was upgraded with composite design from an AASHO (American Association of State Highway Officials) load rating of H18-S15 to the equivalent of H20-S16.

Principal reason for reconstructing the bridge was deterioration of the 7-in.-thick roadway; undesirable vibration and live load deflection were also factors in deciding to rebuild. Steelwork was considered structurally adequate. By bonding the new concrete slab to the steel beams, vibration and deflection were reduced.

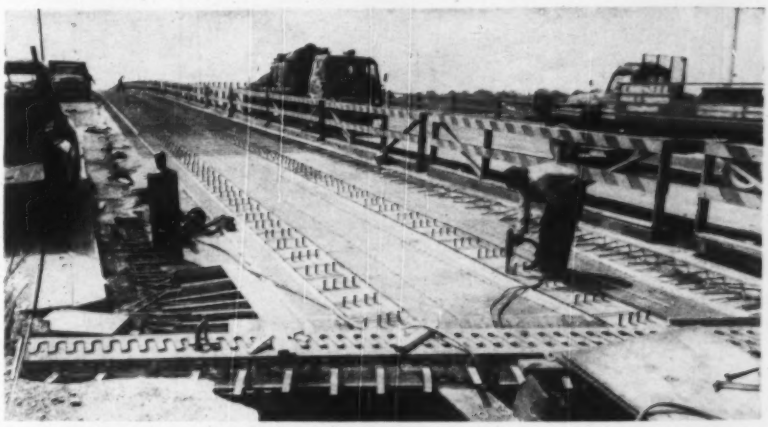
Since the concrete had to be replaced, composite construction was considered the most economical method of stiffening the structure. If it had not been necessary to replace concrete, it probably would have been more economical to weld cover plates to the bottom flanges of the beams. Cover plates would have increased steel stiffness, but probably would not have reduced vibration as much as composite construction. Under the circumstances, no cover plates were used.

Engineers used Nelson headed shear connector studs 4-in. long and $\frac{7}{8}$ in. in diameter to obtain composite action. Selection of this type of shear connector eliminated the possibility of warpage in the structural members. Warpage is sometimes encountered when prolonged arc time is required in the fillet welding of structural shapes or other type connectors.

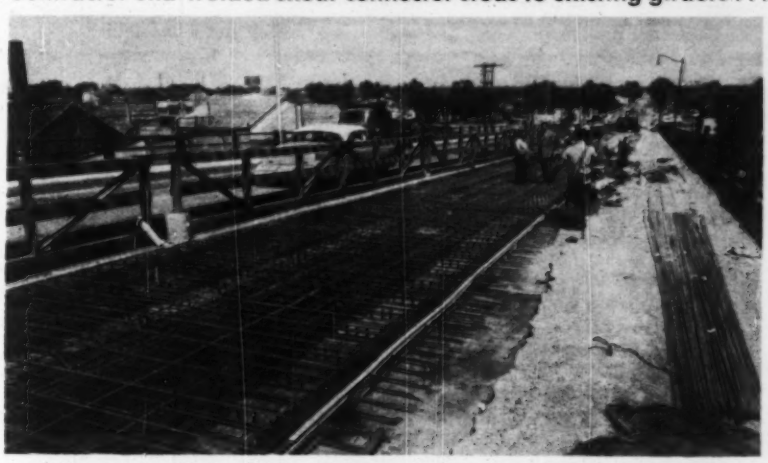
A total of 24,160 studs were end-welded to the upper flanges of the bridge girders with a stud welding gun. The contractor welded four in a row with rows from 6 in. to 18 in. apart. Welders installed them at a rate of about three studs per minute. Use of end-welded studs simplified installation of the shear connectors near rivet heads on the plate girder spans.

Traffic was maintained on one-half of the bridge, while the other half was being rebuilt. General contractor was the States Improvement Company, Maywood, Ill.

Work was done for the Division of Highways of the Illinois Department of Public Works and Buildings. R. R. Bartelsmeyer is chief highway engineer.



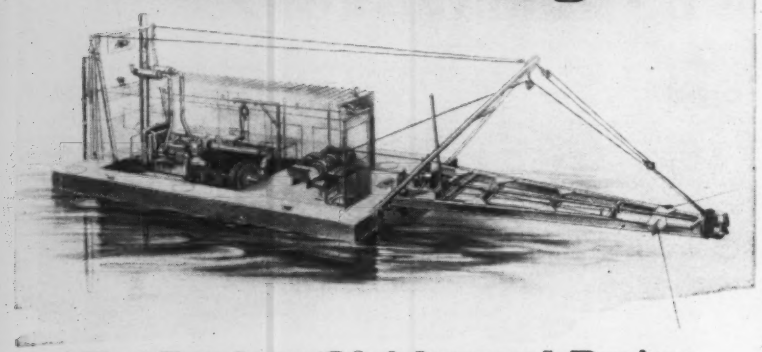
Contractor end-welded shear connector studs to existing girders . . .



. . . then installed reinforcing steel for new roadway, and . . .

. . . placed deck concrete. Studs insure composite action.

Ellicott "Dragon"® Model Portable Dredges



The Dredges Of Advanced Design Whose Performance Is Proved Not Promised

Here are some of the reasons:

1. These are dredges in which portability is a reality not a possibility. *Patented* 2-piece hull disassembles quickly and can be reassembled on shore or in the water.
2. All components designed and built by Ellicott whose centralized engineering and manufacturing responsibility insures quality control.
3. Products of experience gained by a company which has concentrated on designing and building dredges of all sizes and types for 75 years. *This "know-how" is unequalled by any other dredge builder.*
4. "DRAGONS" are completely electro-hydraulically operated with unified controls to facilitate handling ease, lessen operator fatigue and raise outputs. *This kind of control was introduced by Ellicott on portable dredges over 10 years ago.*
5. Because severe damage can often occur when equipment is submerged from view, Ellicott locates *all primary machinery above the water,* eliminating the downtime of costly accidents from cave-ins or debris entanglement.
6. "DRAGONS" which comprise over half of Ellicott's total dredge production are working throughout the world on road construction, land reclamation, industrial anti-pollution and waterway maintenance programs. These are only a small sampling of the projects on which "DRAGON" versatility has been demonstrated.

For further information on the certain efficiency and the economy of "DRAGONS" and what satisfied users have said about them, send for Bulletin 980. Just fill in the handy coupon.

2755

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Blade Control Test

Productivity spurred by automatic control

Tests conducted at College Station, Tex., late last summer demonstrated impressive increases in productivity for a motor grader equipped with automatic blade control over the same machine under manual control.

The test was done by grading adjacent strips about 1,100 ft long and 34 ft wide (24-ft roadway and 10-ft ditch) under controlled conditions. The same operator performed all phases of the test.

The machine used was a Caterpillar No. 12 motor grader with Preco automatic blade control. The soil was a sandy-clay, clay predominating, that could be worked satisfactorily when moist but was hard and tough when dry.

Tolerance of finished grade was 0.04 ft plus or minus from theoretical grade line and section. Engineers placed grade stakes at longitudinal spacings of 100 ft on tangents, 50 ft on transition and superelevated sections. Three rows of stakes were used for the strip graded under manual control, while only one row was needed for the strip done with automatic blade control.

Excess material was about equal on both sides, as determined by cross sections taken before the test began. Contrary to usual practice, where scrapers are often used, all excess material was bladed outside the roadbed, which resulted in increased grading time for both strips.

After the strips were graded, checks were made at random points to determine if they conformed with the special tolerances. Both scrapers were graded with comparable accuracy and were within the tolerances specified.

Principal results of the tests were as follows:

1. Net Grading Time
   - With manual control—eight hours, 13 minutes.
   - With automatic blade control—four hours, 37 minutes.
2. Total Staking Time (includes original staking by three-man crew and resetting stakes)
   - With manual control—six hours, 25 minutes.
   - With automatic blade control—one hour, 55 minutes.

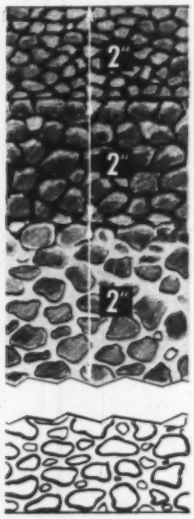
R. L. Peurifoy, College Station construction consultant, conducted the test in association with the Engineering Extension Service of Texas A&M College. Representatives of the Bureau of Public Roads were present as observers during all phases.

FOUND!

A winning combination: Asphaltic concrete made with Chevron Asphalt over a Dilute Bitumuls Treated Base.

For "Deep-Strength" Construction PLUS Economy!

Realignment of U. S. Route #99 (Pacific Highway) between Albany and Eugene, Oregon, involves construction of twelve miles of new, heavy-duty pavement.



4 inches Asphaltic Concrete made with Chevron Asphalt; laid in 2 lifts as indicated.

Top 2 inches of crushed stone base treated with diluted Bitumuls; then compacted.

Compacted base stone

The original "specs" called for construction of a compacted stone base, surfaced with 4 inches of asphaltic concrete. As a result of preliminary tests, however, a Field Change Order was issued specifying treatment of the top 2 inches of the base with an economical nine-to-one dilution of Bitumuls.

Dilute Bitumuls Treatment "controlled" the top of the base during surfacing; provided water-resistance that contributed to an overall stronger pavement. Over the base, two lifts of asphaltic concrete made with Chevron Asphalt were placed to complete the construction.

The job is under the direction of the Oregon State Highway Department. The contractor, Warren Northwest, Inc., has done a fine job of coordinating all phases of the job. One key factor in maintaining operations on schedule has been the dependable, on-time service on Bitumuls and Chevron Asphalt deliveries.

Call office nearest for details on how Bitumuls Emulsified Asphalts and Chevron Paving Asphalts can be combined to give you better pavements at lower cost.

Dilute Bitumuls-Treated Base

Surfacing (made with Chevron Asphalt)

American Bitumuls & Asphalt Company

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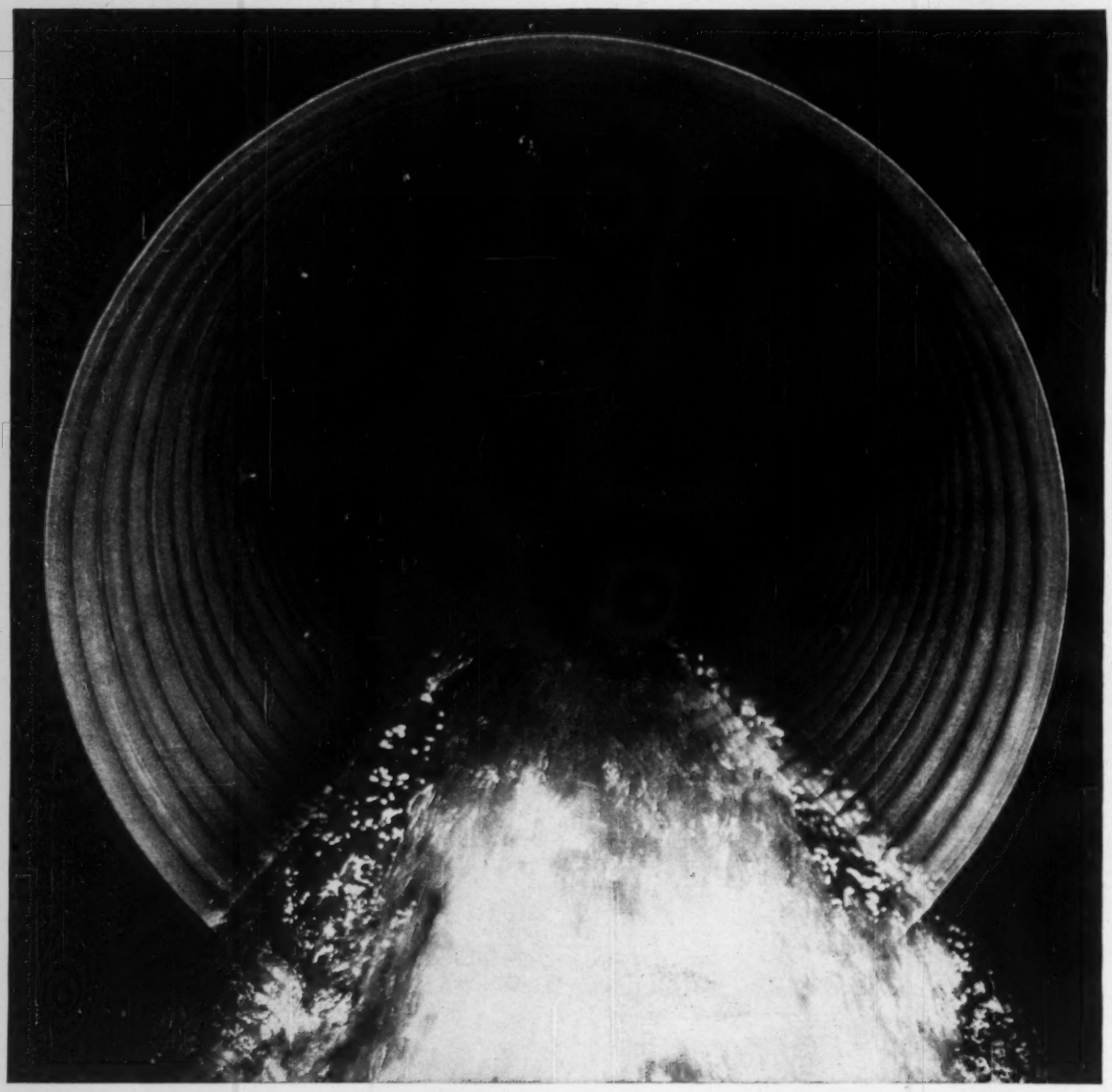


Strong protection against pipe failure

Last year the first *all-aluminum corrugated culvert pipe* came into use in modern roads and highways.

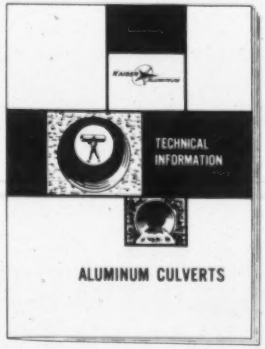
The reason: the success of new Kaiser Aluminum Culvert Sheet—a special high-strength clad alloy based on ten years of severest soil corrosion testing.

The corrosion resistance of this new aluminum pipe is as thick as the metal itself. It is not endangered by everyday scrapes and runoff abrasion—conditions that chip off a galvanized coating and expose bare steel to rusting out. For any culvert load, fill limit, or safety factor you have normally specified for steel, there is now an aluminum pipe strength to meet your requirements. Independent tests show comparable installed pipe performance.

Here are some of the subjects covered in the bulletin

"ALUMINUM CULVERTS – TECHNICAL INFORMATION"

- where to use aluminum culverts
- soil considerations
- how to determine sizes
- installation and assembly
- availability data
- suggested specifications



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KAISER ALUMINUM

Saves up to 20% in total job cost

Since early 1960, contractors have reported savings up to 20% in total job cost because of the lower handling and installation costs of aluminum culvert.

Aluminum pipe *weighs less than one-third* as much as steel—160 pounds against 500 pounds in a typical 20′ x 24″ section.

This means that winch equipment is seldom needed for lifting. Aluminum pipe is loaded and positioned by hand, sawed to size almost like wood, and easily connected. A typical crew can install about 20% more of this new culvert per day.

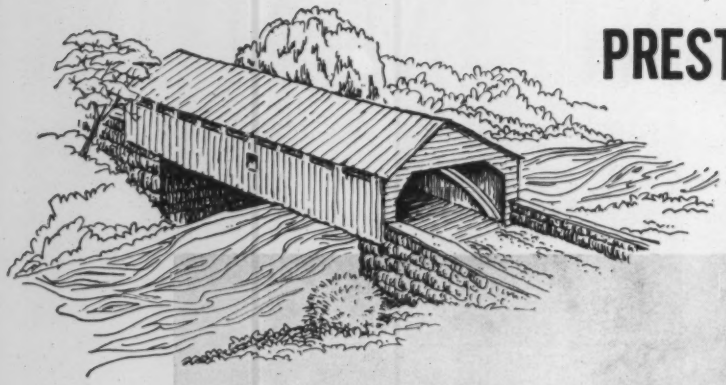
For availability and complete technical information mail the reply card above... or contact your nearest Kaiser Aluminum Sales Office listed in your telephone directory.

KAISER ALUMINUM

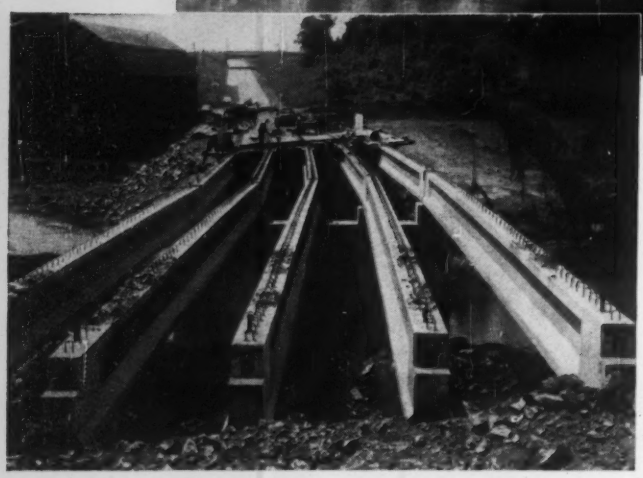
New leadership in the world of aluminum

PRESTRESSED CONCRETE

replaces historic covered bridge...



Just visible among trees in background is the old bridge, built in 1841, which has now been restricted to pedestrians, equestrians and cyclists. Between the old and the new bridges can be seen a temporary span composed of five 40′ x 3′ prestressed concrete box beams, which was used during life of job for movement of construction equipment.



Each of the 15 prestressed I beams is 74′ long and weighs 22 tons. At the far end of bridge workmen build forms for concrete deck. In addition to the use of Lehigh Early Strength Cement in the beams, Lehigh Portland Cement was used for both deck and piers.

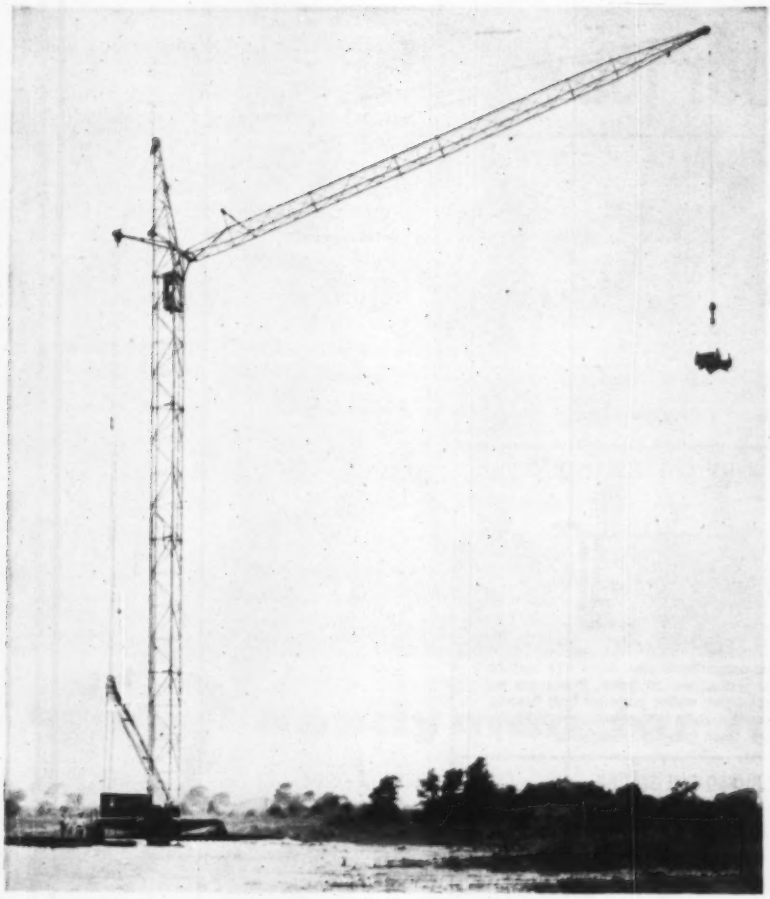
Owner: Pennsylvania State Highway Department
Contractor: Kingston Contracting Company, West Point, Pa.
Prestressed Beams: Eastern Prestressed Concrete Corporation, Line Lexington, Pa.
Ready Mix Concrete for Piers and Deck: The Sheesley Company, Allentown, Pa.

LEHIGH CEMENTS

● Once again, prestressed concrete has been selected to help ease a problem of increasing traffic. Here, a neat three-span structure replaces a picturesque, but inadequate, covered bridge south of Allentown, Pa. The reasons for the choice of prestressed concrete—appearance, ease of erection, initial cost, low maintenance—explain its growing popularity the country over.

In the manufacture of the prestressed I beams, Eastern Prestressed Concrete Corp. used Lehigh Early Strength Cement. Consistent use of this type of cement in their prestressing operations helps them attain maximum production efficiency through early removal of units and quick re-use of forms.

This is typical of the advantages of Lehigh Early Strength Cement in modern concrete construction. Lehigh Portland Cement Company, Allentown, Pa.



As the job goes up so does the tower crane's cab.

Crane Reaches 240 Ft High

The first rail-mounted tower crane to be made in this country, the Mark I-50 has a boom that can reach 240 ft high and describe a circle 240 ft in diameter. The tower crane combines features of a conventional truck crane with the function of a building-construction elevator.

Like conventional mobile cranes, the Mark I-50 is a self-propelled, full revolving machine; like the elevator it gets up close and delivers material at faster rates than conventional cranes.

The tower and boom of the crane are of aircraft alloy steel tubing, fabricated into a specially designed triangular cross section. Four identical sections, each 30 ft long, and one 31-ft-long top section make up the tower. Boom foot and point sections are both 30 ft long; boom inserts are 10, 20 and 30 ft. The crane handles as much as a loaded 1-cu-yd concrete bucket at 120 ft operating radius, or it can lift approximately eight tons at minimum radius.

Designed for truck transport, the crane's working weight is about 63 tons. When stripped of its counterweight and disassembled for hauling or storage, its heaviest component, the revolving frame and main machinery, weighs 12 tons.

The tower and boom can be assembled on the ground. Both can be raised by the machine itself—without the help of another crane. This task requires no additional counterweight and no special rope reeving. The operator has only to haul in on the boom hoist line to raise both tower and boom to working position.

The Mark I-50 is rail-mounted on 16-ft-gage track and moves up to 160 ft per minute in either direction. Propelling power is provided by two electric motors flange-mounted to gear cases on two of the four rail bogies. The driven bogies are on the same track to eliminate compensation problems on curves. All four bogies are mounted on swing arms attached to the machine's base.

Interlocking cast iron counterweights on the crane's revolving frame are held in place by a tongue and groove arrangement, without bolts, and can be installed or removed individually. To keep the center of gravity low, the lower works are also counterweighted. The heaviest counterweight sections weigh 2,500 lb.

The tower crane is electrically powered and can draw current from any convenient commercial 440-volt, 60-cycle AC supply. Hoist power is provided by a DC motor with Ward Leonard control that automatically matches hook speed to the weight of the load and still permits the operator to control the speed. Step-up and step-down gear shifts are eliminated.

All movements of the crane are independently powered and controlled. The machine can move in either direction, swing either way, hoist or lower a load and raise or lower its boom simultaneously or in any combination the operator may choose, all under full load. The operator can control the machine from the cab inside the tower, or with optional remote controls from any nearby vantage point.

The cab can be moved to any of five positions at various levels in the tower to provide the best view of the work area. The operator has visibility through three safety glass windows, the front one consisting of two sliding panels, which are removable. Electrical outlets are provided inside the cab.

A load-sensing device indicates just how close any lift is to the maximum allowable load. If a lift reaches the maximum capacity at any boom angle, the device cuts off hoist power and sets the brake before overloading can occur. A broken wire or any failure in the device itself also cuts off power automatically.

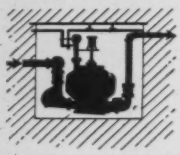
A limit switch prevents loads from being drawn into the boom point sheave and prevents the boom from being lowered when the hook is up. Another switch shuts off the propelling motors as the crane approaches the end of its tracks.

Brakes on all crane movements are spring set and magnetically released, and all are set automatically in event of power failure.

The revolving frame of the tower crane is joined to the lower works with a large diameter double ball bearing swing circle. The swing circle assembly

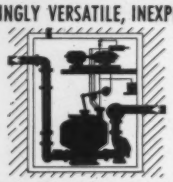
Which sewage lift station is best for your job?

TOPS IN DEPENDABILITY AND SAFETY



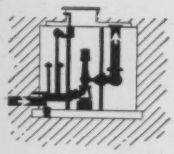
Concrete or steel underground station with Shone® Type S pneumatic ejector, mechanically controlled (warranted 25 years). Remote air supply. Nothing electrical; maintenance free, operates even under water. For municipalities and large subdivisions.

SURPRISINGLY VERSATILE, INEXPENSIVE



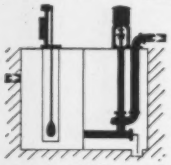
Shone® Type SAC station, underground in concrete vault. Mechanically controlled ejector (warranted 25 years) has its own compressor. Frequently less costly than package stations. Finds use everywhere.

PACKAGE STATION



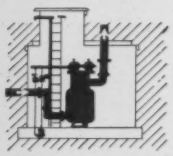
Quality underground station with vertical, short-coupled (Series 6260), dry pit centrifugal pumps. Quality design and equipment give good service life at nominal cost. For small permanent stations, growing areas.

LOW FIRST COST—EASY INSTALLATION



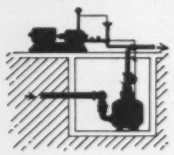
Two-compartment steel basin with centrifugal vertical wet pit pump. Pumps are not submerged; motors protected from flooding. Low first cost; fast installation. For buildings, small growing subdivisions.

ULTIMATE IN PACKAGE DESIGN



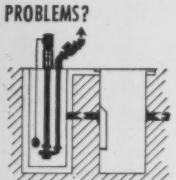
Package underground station with Expelsor® pneumatic ejector, electrode controlled. Sanitary and dependable, low maintenance, easy to service. Recommended for municipal and subdivision applications.

BUILDING TYPE STATION



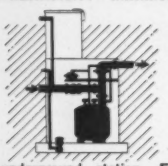
Expelsor® pneumatic ejector station designed for use in buildings. Compressor is on basement floor; ejector on floor below. Sealed installation gives safe, odorless handling of sewage indoors.

SPECIAL PROBLEMS?



Centrifugal vertical wet pit pumps with adjoining settling basin. Good for areas where sand or old sewers create problems. Special pump construction for abrasive or corrosive conditions, industrial wastes.

MAXIMUM RELIABILITY—MINIMUM SPACE



Package underground station. Expelsor® pneumatic ejector has two compartments, duplex compressors and controls. Excellent service accessibility. Especially suited for subdivision and municipal lift stations.

L-5911

The answer depends on the job. Is it to be a temporary station? What about future loads? How much maintenance will it get? What type of power is available? These and many other questions must be weighed carefully and without bias. In making the decision, why not put Yeomans 61 years' experience (59 on underground stations alone) to work? Because Yeomans builds **the only complete line** of sewage lift stations in the industry, recommendations are **impartial** and in your best interest. Phone, wire, or write now.

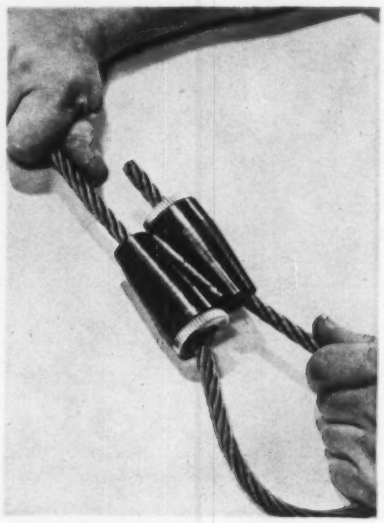
YEOMANS

1999-1 North Ruby Street, Melrose Park, Illinois

SPECIALISTS IN SEWAGE LIFT STATIONS—THE COMPLETE LINE

. . . New Products

includes a ring attached to the upper works, a lower ring attached to the lower works and a clamp ring between the two. Each of these three major parts is a heat-treated and surface-hardened endless ring made of perlitic manganese steel. Individual balls in both rows are separated by nylon spacers. An internal tooth swing gear with cut teeth is an integral part of the lower section of the swing circle. Bucyrus-Erie Co., South Milwaukee, Wis.



Eye-Splicing Is Easier Than Threading a Needle

Reliable eye splices are possible in less than half a minute, with the reusable Eye-Splicer, says the manufacturer.

The tool is an outgrowth of the Supreme Strand Chuck—a standard wire strand anchoring device used by many prestressed concrete plants.

To make a splice simply insert the strand into one side of the Eye-Splicer, slide it through until there's enough strand to form a loop. Then bend back the end and push it through the outer side of the splicer. As soon as this is done the eye is complete and ready to use, the maker says. It can be left on the strand as a permanent fixture or removed when the need for the eye is ended.

No tools are needed for forming the eye splice, but a Supreme removal tool is helpful when the splice is to be removed. This slides down the wire into the Eye-Splicer and breaks the grip of the jaws on the wire. Supreme Products Corp., 2222 So. Calumet Ave., Chicago 16, Ill.

"New" handyman for home-builders

Unusual uses of Michigan Tractor Shovels reduces costs for Montana contractor on wide variety of tasks . . . including digging basements

On the Riverview Terrace housing project in Great Falls, Montana—where William N. Kessner, Inc. is building 150 $150,000 homes per year—a pair of Michigan Tractor Shovels has reduced costs of virtually every material handling operation!

Their versatility has prompted company officials to term the two rigs "as necessary to the home-builder as 2 x 4's."

Yet, not so long ago, Kessner's original Michigan—a Model 75A with two yard bucket—was used *exclusively* for loading spoil into haul trucks. But the machine soon showed it had free time. So it began cleaning spillage off driveways and sidewalks, too. Then Kessner put it to work backfilling around foundations and service lines. Then clearing brush and debris. *Then digging the basements!* (Rig worked so well here, this unusual rubber-tired task has become a Michigan "specialty." Typical basement, 24 x 30 ft by 6 ft deep, through sandy clay and gumbo, takes about three hours to dig and trim.)

The second Michigan, another 80 hp Model 75A, is equipped with a set of forks and assigned primarily to handling the building supplies. It too has produced a major time-saving. Instead of fabricating on the job, carpenters now nail together large wall sections of each home under the ideal working conditions of the shop. Each completed section—loaded by the Michigan fork lift—is trucked to the appropriate site; then unloaded, lifted and held by the Michigan for precision placement on the foundation. For the average house, the four "prefab" walls can thus be set in ¾ hour! The saving? Literally days over customary erect-in-place methods.

There are dozens of time-saving construction uses like these for Michigan Tractor Shovels and their many buckets and attachments (including crane hooks, back hoes, sweepers, backfiller blades, scarifiers). Make a list of material-handling chores you'd like to speed (or make more economical) . . . then ask your Michigan Distributor for a demonstration of each. Judge for yourself. We think you'll like what you see.

Wall section, prefabbed at shop, is steadied in vertical position by Michigan for precision spotting on concrete foundation.

Fork-equipped Michigan Model 75A picks 2,000 board feet off haul truck, delivers it to contractor's carpentry shop.

Michigan is a registered trademark of
CLARK EQUIPMENT COMPANY
Construction Machinery Division

CLARK® EQUIPMENT

2401 Pipestone Road
Benton Harbor 12, Michigan

In Canada:
Canadian Clark, Ltd.
St. Thomas, Ontario

THE SURVEYOR'S NOTEBOOK

Reporting on Unusual Surveying Problems and Their Solutions
Notekeeper: W. & L. E. Gurley, Established 1845

How to Make a Plumb Board for Easier Layouts

"A couple of years ago, windy days, green rodmen and terrain hazards were slowing up construction layout," recalls George Guesmer of Minneapolis. "Reference points were hidden from the transitman by brush, dirt, concrete and construction materials. With the plumb bob swinging in the wind, accurate work became impossible.

"I solved all the problems by making a plumb board. To make one yourself, obtain a builders' three-way plumb and level (used in making an ordinary mason's level) and a piece of plywood ½-inch thick, 48 inches long and the width of the plumb and level (generally three inches). Drill three one-inch holes in the plywood to permit observation of the level bubbles from the rear of the plumb board. Paint the plywood with a couple of coats of flat white.

"After the paint has dried, use black waterproof drawing ink and a ruling pen to draw a line lengthwise down the middle of both sides of the plywood. Graduate the ends of

Guesmer plumbing back of obstruction (left); offsetting.

the board in inches—or tenths, if you prefer. The alternating black rectangles make it easy to see the vertical line at a distance. To preserve the inked lines and to keep the board clean, spray the entire board with a clear plastic or brush on a clear spar varnish.

"I found my homemade 48-inch plumb board easy to handle and adequate for most work. It's especially handy for offsetting a reference line or measuring a short distance. I have run many an accurate, trouble-free mile of line using my plumb board, Gurley transits and Gurley levels."

"The Surveyor's Notebook" collection is packed with valuable tips like these. More than 40,000 engineers and surveyors are finding them helpful. Write for your free copy... At the same time, why not send us your own story?

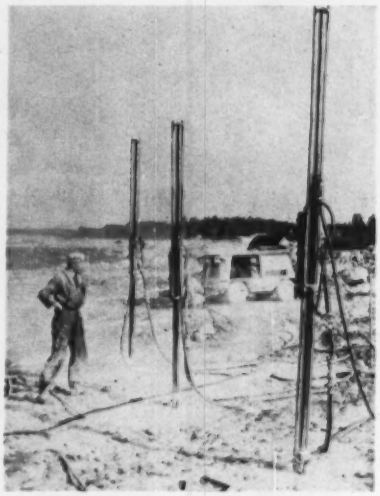
VP

Variable Power, now standard on all Gurley transits and levels, permits wide range of magnification with *one* eyepiece. Change your magnification to suit weather and light conditions. Built-in haze filter. Write for "Facts on VP."

W. & L. E. GURLEY
Union Plaza, Troy, N. Y.

GURLEY Surveying and Scientific Instruments

. . . New Products



Self-Standing Rock Drill Finds Uses on Small Jobs

Workmen can stand by and watch a line of "Benchers" drilling hard rock.

Designed for use on small projects or in work areas where it is difficult or uneconomical to operate wagon drills, this unit fills the gap between hand-held rock drills and larger wagon drills, the maker says.

The Bencher is a self-standing drill mounting and air-operated drill. Two units may be operated by a single worker.

A drill is mounted on the 80-lb rig by two tie rods connected with the end of a double-acting piston rod, which moves in the tool's air cylinder. Constant feed pressure is achieved, the maker says, through use of a regulating valve at the top of the cylinder.

In addition to regular benching work, the unit can be used for sinking shafts. Atlas Copco, 545 Fifth Avenue, New York 17, N. Y.

Gage Changes Its Stripes To Give a Fast Reading

The "Zig-Zag" liquid gage kit is designed to let operating personnel read gage levels simply from distances up to 50 ft.

Engineered to show liquid level at the junction of opposing slanted line, the patented conversion kit depends on the principle of reversed images to do its job.

Features of the illuminated gage include legibility, whether mounted vertically or on an incline, easy installation and adaptibility to all standard gage units. Purchasers should specify size and make of gage and glass to be converted. Windsor Equipment Sales Co., 5 High Court, Little Falls, N. J.

Michigan rubber-tired dozer prevents job shutdown

Haul trucks bogged down until Model 280 arrives to spread fill and compact in one operation

When a Michigan Model 280 Tractor Dozer was put to work on the Rieth-Riley Construction Co job near South Bend, Indiana, filling and compacting problems—which threatened to close the job—were solved.

It was early spring. This Goshen, Ind, firm was working on a $1,000,000, 644,000 yd contract, building part of a divided highway to bypass South Bend. Trouble started when pockets of wet glacial clay were encountered. Then it snowed and the material became even more unstable. The dozen 10 yd trucks hauling onto the fill were continually bogging down. A 10-ton, 3-wheel roller couldn't compact fast enough and a pair of 200 hp crawlers couldn't spread fill and pull out trucks too. The job was near a stand-still.

At this point, Grade Foreman "Cannonball" Condra thought it might be a "good idea" to try a mobile Michigan Tractor Dozer. Michigan Distributor, Deeds Equipment Co, brought out a 262 hp Model 280.

Half a day's work with the Model 280 unsnarled the tangle. The key was speed. The fast rubber-tired rig could assist trucks when they bogged down and still have time to spread material across the length and 250 ft width of the fill.

Compaction: 95% in normal dozing

Later, an even more amazing thing began to happen. As the day wore on, trucks no longer became mired in the unstable material. The Model 280 with its big tires and working weight of 56,000 lbs, was compacting fill so well the trucks could get through. Moreover, in the *normal course* of its dozing job, required compaction was being attained by the Michigan alone . . . compaction which equalled the specs of 95 to 100% Proctor.

So, trucks got through and the job was kept open. The Michigan Model 280 handled the spreading of fill and compaction for 12 trucks—3,000 pay yds per 10 hr day. The two crawlers were put on standby. Track costs, a major problem in the sandy material, were eliminated. The roller was retired.

In later weeks, as weather and soil conditions improved, the Michigan's versatility, power and speed paid off even more. On push-loading assignment, for instance, the Model 280 loaded 15-yd scrapers in 45 seconds. Grade Foreman Condra put it this way, "I won't say our Michigan will do everything, but I am convinced we can't get along without it." Maybe *you* "shouldn't get along without a Michigan" either. Why not call for a demonstration. Choose from four sizes—162, 262, 375, and 600 hp.

Michigan is a registered trademark of

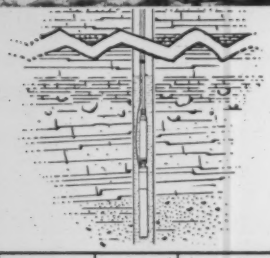
CLARK EQUIPMENT COMPANY
Construction Machinery Division

CLARK EQUIPMENT

2401 Pipestone Road
Benton Harbor 8, Michigan

In Canada:
Canadian Clark, Ltd.
St. Thomas, Ontario

Where WATER SUPPLY is a DOLLARS and "SENSE" Problem . . . choose REDA Submergible PUMPS!



1 QUALITY CRAFTSMANSHIP
Yet production-line cost . . . . Motor and pump are Reda designed!

2 Oil-lubricated motors require less power per H.P. . . . PROVIDES MORE WATER PER DOLLAR than comparable units.

3 A complete line to meet operating heads and capacities required.

Pump Type	Unit O. D.	Horsepower Range			Gallons Per Minute		Head In Feet	
		230 V 1 ph.	220 V 3 ph.	440 V 3 ph.	Minimum	Maximum	Maximum	Minimum
F-30AE	6"	5-7½	5-15	5-20	24	43	1600	220
D-33E	6"	5-10	5-20	5-40	28	56	2400	180
D-47E	6"	5-10	5-20	5-40	34	72	2000	140
G-70E	6"	5-10	5-20	5-40	42	100	1800	100
G-120	6"	5-10	5-30	5-40	93	158	1100	60
G-160	6"	5-10	5-30	5-40	86	186	900	60
I-200	8"	7½	7½-30	7½-40	80	272	800	80
FR-300	8"	7½	7½-40	7½-40	137	425	400	40
J-400	8"		15-40	15-40	265	625	240	40

Models available from ⅓ to over 300 H. P.

Call or write for Industrial Bulletin R-432, and more complete information.

REDA PUMP COMPANY / BARTLESVILLE, OKLAHOMA

Manufacturer of Submergible Motors and Pumps for over 40 Years
Pumps for Oil, Brine and Water Wells, L.P.G., Chemicals, Gasoline and Jet Fuel

SIGN OF QUALITY SUBMERGIBLE REDA PUMPS

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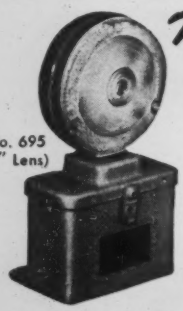
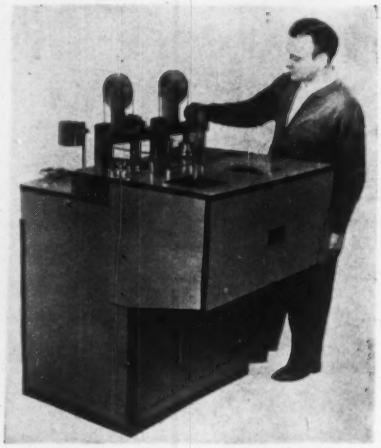


Now...the New No. 695 *Visi-flash* joins the famous DIETZ family!

- Large 5" lens with reflex reflector for added safety
- Die-cast head for greater strength, rigidity and stability
- Available with plug-in or switch type circuits

Write for details and catalog No. 55 showing the complete Dietz Visi-flash Line.

R. E. DIETZ Company Dept. 511 Syracuse, N. Y.



Soils-Under-Load Tester Records Automatically

An apparatus that determines the probable time-settlement characteristics of soils under load has an automatic data-recording feature, according to its maker. It is designed for engineers and test laboratories who use this consolidation test data to predict settlement of buildings, bridge abutments or similar structures.

The instrument has a maximum capacity of about 28 tons per sq ft on a standard 2½-in.-dia test specimen. It operates with a lever system that applies the load to the specimen.

The recording mechanism is sensitive to 0.0001 in. of consolidation. During the recording, the chart drum is rotated on a time base set for two different operating speeds; one speed records the primary settlement and the other the secondary consolidation. The tester is supplied with all operating equipment including weights, dial indicators and meters.

Dimensions of the machine are 34 in. wide, 42 in. deep and 32 in. high. It weighs 450 lb. SOILTEST, INC., 4711 W. NORTH AVE., CHICAGO, ILL.

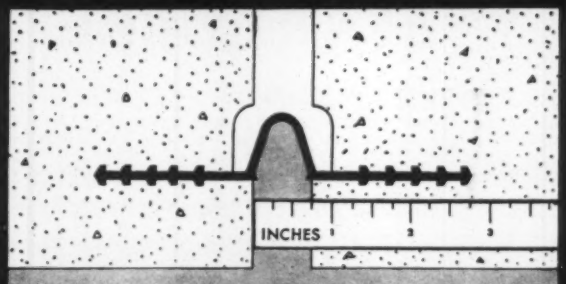
Portable Crushing Plant Features Primary Rotor

The portable Impact Master plant features a single, two-hammer rotor. In recent tests, used as a primary ahead of a roll crusher and crushing down to 1½-in. minus, the plant averaged 230 tph and hit peaks of 300 tph in 90% crush, according to the manufacturer.

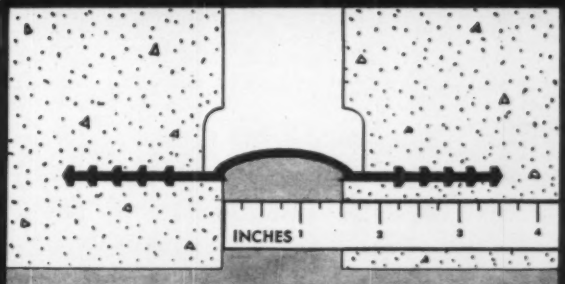
The plant is mounted on an "I" beam, gooseneck frame with tandem axles in the rear and either trucks or fifth wheel available for transportation. UNIVERSAL ENGINEERING CORP., CEDAR RAPIDS, IOWA.

NOW . . . A WATERSTOP DESIGNED TO HANDLE ELONGATION CORRECTLY . . . WITHOUT STRESSING THE MATERIAL OR MULTIPLE-RIB AREA!

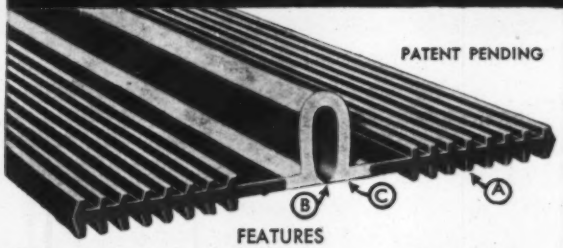
SEALTIGHT® DUO-PVC WATERSTOPS



Notice how the U-Bulb design permits the waterstop to mechanically expand without stretching the material or stressing the multiple-rib area. The DUO-PVC material maintains correct thickness and the ribs remain firmly embedded in the concrete to stop water.



During tests conducted at the University of Detroit the joint was opened 1½" and the DUO-PVC waterstop was subjected to a 100 foot head of water . . . *no leakage occurred* . . . also a 215 foot head of water was applied . . . again *no leakage* occurred. Tests also proved tremendous advantage of the exclusive Sealtight rib design. Copies of test results available.



FEATURES

(A) Exclusive rib design offers greater holding power, strength and rigidity. The rigid ribs will not compress, shear-off or pull-out.

(B) Exclusive thin membrane prevents infiltration of concrete during pouring . . . designed to tear under expansion and allow U-bulb to accommodate extreme expansion.

(C) Exclusive U-bulb design mechanically expands 1½" without stretching material or stressing rib area . . . when greater expansion occurs the DUO-PVC material will then accommodate it safely.

. . . the first waterstop designed to accommodate expansion without impairing the basic function of the waterstop!

Sealtight DUO-PVC Waterstops are simultaneously extruded from two top-quality PVC compounds. The PVC utilized in the center area is compounded to combine strength with maximum flexibility, whereas, the multiple-rib area is extruded from a PVC compound that offers great strength with a desirable rigidity. This new concept of waterstop design permits DUO-PVC Waterstops to effectively function as a waterstop while safely accommodating expansion movements heretofore thought impossible. Mail the coupon below for complete information.

Another important technical advancement from the Research and Development Department of W. R. Meadows, Inc.

SEALTIGHT®
PRODUCTS FOR BETTER CONSTRUCTION

W. R. MEADOWS, INC.
16 KIMBALL ST, • ELGIN, ILLINOIS

Please send without obligation information on the new Sealtight DUO-PVC Waterstops.

Name_____

Address_____

City_____ Zone____ State_____

More proof that...

AMSCO HELPS YOU HANDLE MORE TONS PER DOLLAR

Chuck Weinke, shop superintendent (left) and R. J. Bakken, welder, with Amsco tooth which has just been repointed. Teeth are retipped with repointer bars welded on with Amsco Nicro Mang and hard faced with Amsco #20 electrodes. This combination produces stronger welds, less cracking and longer wear.

Where equipment works mainly in rock... subject to severe abrasion and shock... Here's the way AMSCO users talk...

"BEST BUCKET AND BACKHOE EVER PUT OUT"

That's operator language from experienced users of Amsco equipment at Ashbach Construction Co., St. Paul, Minnesota. Chuck Weinke, Shop Superintendent... Ray Reichow, foreman, and Elmer Ahlschlager, shovel operator... all agree that Amsco dippers, backhoe buckets *and dipper teeth* are the best they've ever used.

Ashbach does highway, bridge and dam construction throughout the U. S. Much of its work is in rock, so the firm is specially equipped to handle jobs involving severe abrasion and shock. And that's where Amsco shines!

Chuck Weinke, shop superintendent sums it up this way: "The reason we use Amsco products is the long life of th bucket and easier application in welding the teeth. There is so little maintenance in comparison to competitive makes."

Let us give *you* the service life story on Amsco Manganese Steel Dippers, Backhoe Buckets and Dipper Teeth. Contact your Amsco representative, or write us direct for technical bulletins.

*Trade Mark Registered

AMSCO

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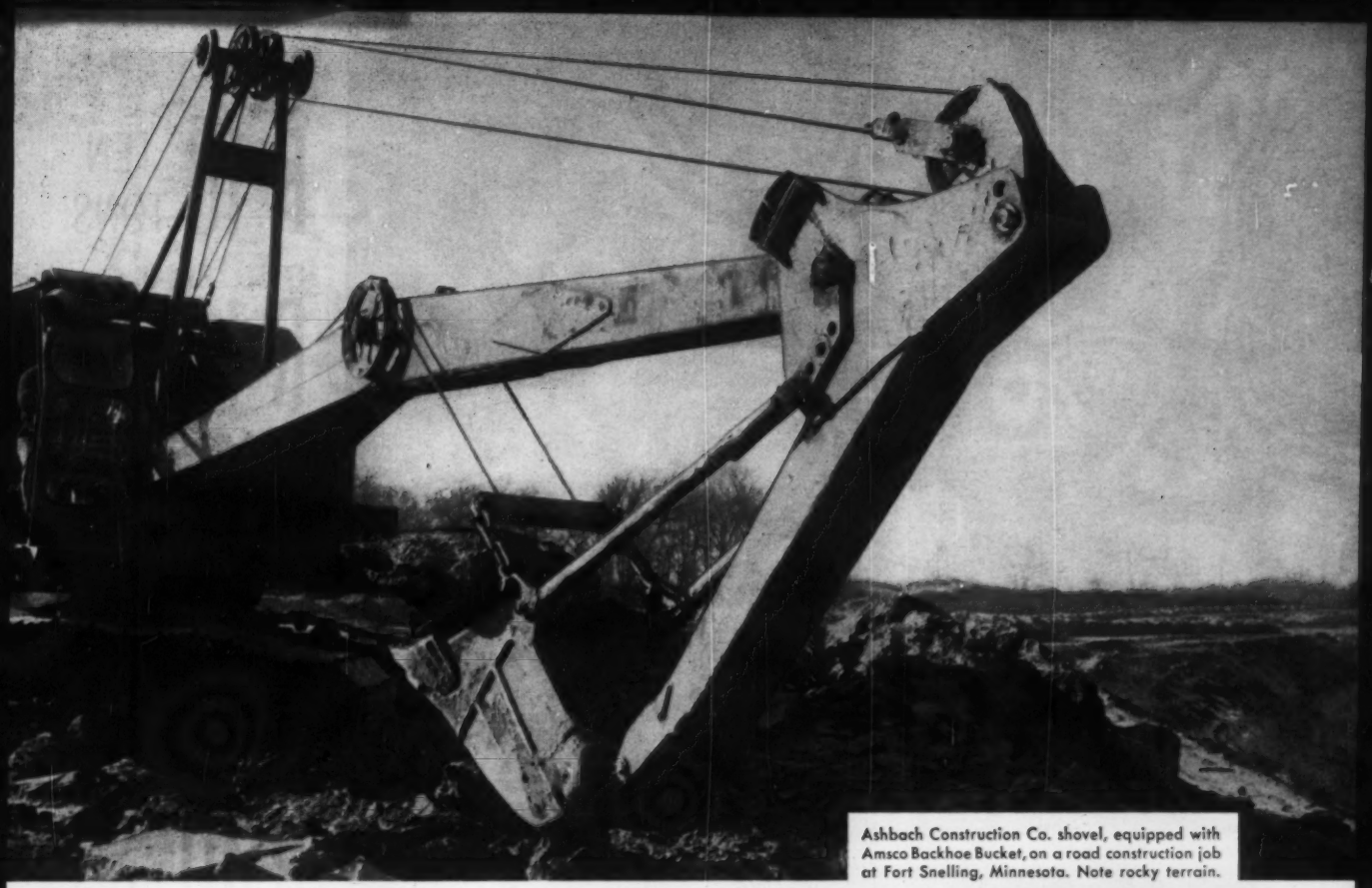
Other plants in: Denver • Los Angeles • New Castle, Delaware • Oakland, California • St. Louis

Welding products distributed by Canadian Liquid Air Co., Ltd.

AMERICAN Brake Shoe COMPANY



Ashbach Construction Co. shovel, equipped with Amsco Backhoe Bucket, on a road construction job at Fort Snelling, Minnesota. Note rocky terrain.

Russell J. Masters, left, and Elmer Ahlschlager, shovel operator, checking the Amsco teeth on an Amsco Dipper.

There's a type and size just right for your job!

Whatever your off-highway hauling work may be—heavy construction, mine, quarry and industrial jobs—there's a job proved "Euc" that can cut your costs and step up production. With unmatched field experience and parts and service facilities of a world wide dealer organization, Euclid Rear-Dumps meet today's requirements for big performance on the toughest jobs.

For facts and figures proof that "Eucs" can mean lower costs on your work and are your best investment, call the Euclid dealer that serves your area.

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R-10 TEN TONS
R-18 18 TONS
R-22 22 TONS
R-27 27 TONS
R-40 40 TONS
R-55 55 TONS

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12, 22 and 35-TON SEMI-TRAILER REAR-DUMPS

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EUCLID EQUIPMENT

FOR MOVING EARTH, ROCK, COAL AND ORE

Construction Women Name Head

The feminine contingent in the construction industry has picked its new spokeswoman for 1960-61. Mrs. Lois J. Acker was unanimously acclaimed president by delegates to the fifth annual convention of The National Association of Women in Construction at Dallas, Tex., last month. She is currently president of the Association's Dallas chapter.

The young organization is composed of 1,746 women who are employed in —or own—businesses in the construction industry. Objects of the organization are: "To unite for their mutual benefit women who are actively engaged in the various phases of the construction industry; to encourage cooperation and better understanding among women in the industry; and to promote fellowship and goodwill among members of the organization."

Mrs. Acker is administrative assistant and a staff member of the firm of George L. Dahl Architects & Engineers, Dallas.

Other officers of the Association are: first vice president, Mrs. Mary DeCamp, Little Rock, Ark.; second vice president, Mrs. Dorothy Vanderhyde, Baton Rouge, La.; third vice president, Mrs. Margaret Tuttle, Boston, Mass.; secretary, Mrs. Daria Curry, Dallas, Tex., treasurer, Miss Delores Hinton, Schreveport, La.

Lois J. Acker

Briefs . . .

Associations

Samuel H. Clark, presently district engineer in San Francisco for the American Institute of Steel Construction, has been appointed to the newly created position of assistant chief engineer. Also, **William A. Milek,** the Institute's district engineer in Omaha, has been promoted to research engineer.

D. J. Renkert of Canton, Ohio, has been elected chairman of the Facing Tile Institute, a national association of structural clay facing tile manufacturers.

The American Institute of Planners has named **Corwin R. Mocine,** Oakland, Calif., as president. He succeeds **Charles A. Blessing** of Detroit, Mich.

Fred A. Schmitz, plumbing and heating contractor of Redwood City, Calif., has been appointed chairman of the technical department of the National Association of Plumbing Contractors. The post was left vacant last August by the death of **Harry L. Stevens** of Hutchinson, Kan.

The Home Builders Association of Los Angeles, Orange and Ventura Counties in California have appointed **C. H. Andrews** as Ventura County field service representative. He has resigned as vice president and sales manager of Security Title Insurance Co. in Ventura to accept the position.

Robert L. Kunes of Phillipsburg, N. J., has been appointed director of public relations for the General Building Contractors Association, Inc.

Business

E. O. Larson, former director of Region IV of the Bureau of Public Roads, has been named a vice president of Berger Associates, an Orange, N. J., engineering firm specializing in irrigation work, photogrammetry and location and design of highways.

Frederick L. Hotes has established a consulting office in Lafayette, Calif., for the practice of civil engineering with emphasis on land and water resources development. He has served on the faculty of the University of California in Berkeley specializing in civil and irrigation engineering and was later in Iran for two years as a water conservation engineer for the Development and Resources Corp.

Rogert I. Senn has been named by Merritt-Chapman & Scott Corp. as project manager for MC&S's portion of the Chesapeake Bay Bridge-Tunnel.

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ANOTHER PROBLEM SOLVED BY SPENCER, WHITE & PRENTIS

SHEETING, BRACING, UNDERPINNING used for foundation of one of Jacksonville's largest hotels

1. SOLDIER BEAMS, HORIZONTAL SHEETING AND BRACING
2. EXISTING BUILDING UNDERPINNED

Project: Robert Meyer Hotel, Jacksonville, Fla.
Architect: William B. Tabler, New York City
Engineers: Seelye, Stevenson, Value & Knecht, New York City
General Contractor: Daniel Construction Co., Jacksonville, Fla.

The site of this 19-story, half-block-square hotel in Jacksonville was nearly all sand. The foundation required several kinds of specialized work, which were awarded to Spencer, White & Prentis.

Soldier beams, horizontal sheeting and bracing (see photo) were used on 3 sides. This type of support made it unnecessary to cope with heavy hydrostatic pressure, since the openings between the sheeting permitted drainage during Florida's tropical storms.

Pit underpinning secured the J. C. Penney building, at right.

Whatever your foundation problem and wherever your job is located – whether South, North, East or West – Spencer, White & Prentis is equipped to give complete dependable service.

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. . . Men and Jobs

Education

Barnett F. Dodge has been appointed Dean of the Yale University School of Engineering. Chairman of the Department of Chemical Engineering since 1931, he succeeds **Dana Young,** Sterling Professor of Chemical Engineering, who is resigning his deanship to give full time to teaching and research.

Earl Brown II, former assistant dean of the Alabama Polytechnic Institute School of Engineering at Auburn, Ala., has been appointed chairman of the Civil Engineering Department at Duke University, Durham, N. C. He will also become J. A. Jones Professor of Civil Engineering at Duke succeeding **Robert S. Rowe,** who has resigned to become Dean of the Vanderbilt University School of Engineering at Nashville, Tenn.

Southern Methodist University, Dallas, Tex., has named **Howard J. Henry** Dean of the School of Engineering to replace **Earl H. Flath,** who has retired. Mr. Henry had been director of engineering of the Chicago Pneumatic Tool Co.

John W. Shupe, associate professor of applied mechanics at Kansas State University, has been appointed associate dean of the university's School of Engineering and Architecture.

The University of Pennsylvania has elected Philadelphia architect **Sydney E. Martin** an emeritus life trustee. Mr. Martin, a trustee since 1937, is a member of the architectural firm of Martin, Stewart and Noble.

After seven years as a project architect at the University of California Lawrence Radiation Laboratory in Berkeley and Livermore, **Philip W. Faulconer** left last month for a year's visit to scientific laboratories and research organizations in Japan, India and Europe.

John C. Bellamy, former associate director of the Cook Research Laboratories in Chicago, has been named director of research in the University of Wyoming's College of Engineering.

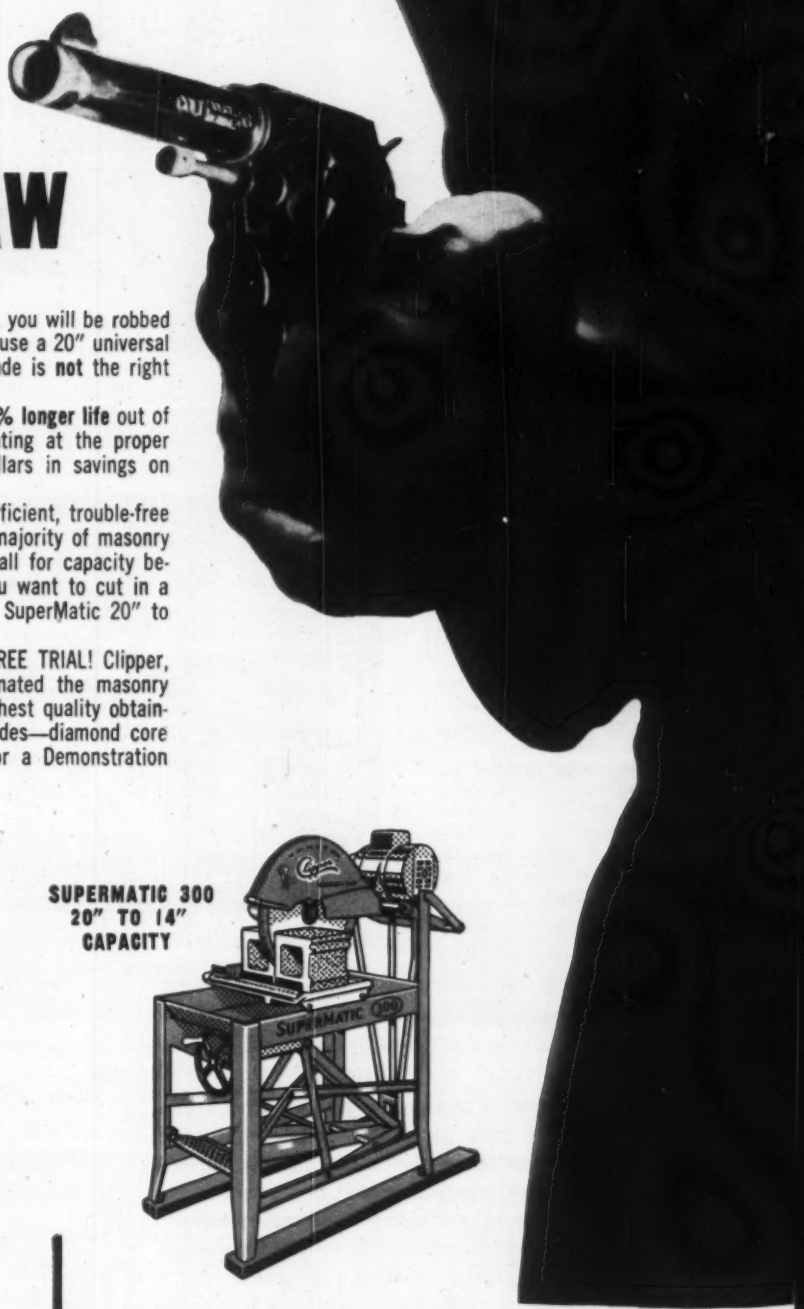
Adrian Pauw, professor of civil engineering at the University of Missouri, has been awarded a Fulbright grant to lecture on concrete technology next year at Delft Technical University in The Netherlands.

Lehigh University has appointed **C. Leonard Hulsbros** as research professor of engineering. Before his appointment, he had been a professor of civil engineering at Iowa State University.

F. W. Stubbs, Jr., professor of civil engineering, Purdue University, will spend next year at the University of California as visiting professor of civil engineering.

WHAT?

ROBBED BY A MASONRY SAW



Yes, if a 14″ masonry saw meets your requirements, you will be robbed of dollars . . . many dollars . . . if you purchase and use a 20″ universal saw. It's very simple. The right speed for a 20″ blade is **not** the right speed for a 14″ blade.

Independent laboratory tests prove you get **32.7% longer life** out of a 14″ blade when you use it on a 14″ saw operating at the proper speed. This can easily add up to hundreds of dollars in savings on one job alone.

Clipper SuperMatic 14″ Hi-Speed is the most efficient, trouble-free masonry saw ever built. It's **the** saw for the great majority of masonry saw users. But, Clipper realizes that certain jobs call for capacity beyond 14″; for instance, a large block job where you want to cut in a single pass. That's why Clipper also offers you the SuperMatic 20″ to 14″ universal saw.

Only Clipper offers you this choice—and on FREE TRIAL! Clipper, with its Engineering Leadership by men who originated the masonry cutting industry and know it best, bring you the highest quality obtainable in masonry and concrete cutting saws and blades—diamond core bits and drills. Call Collect Today for Free Trial or a Demonstration on your job.

HI-SPEED SUPERMATIC 314 14″ CAPACITY

SUPERMATIC 300 20″ TO 14″ CAPACITY

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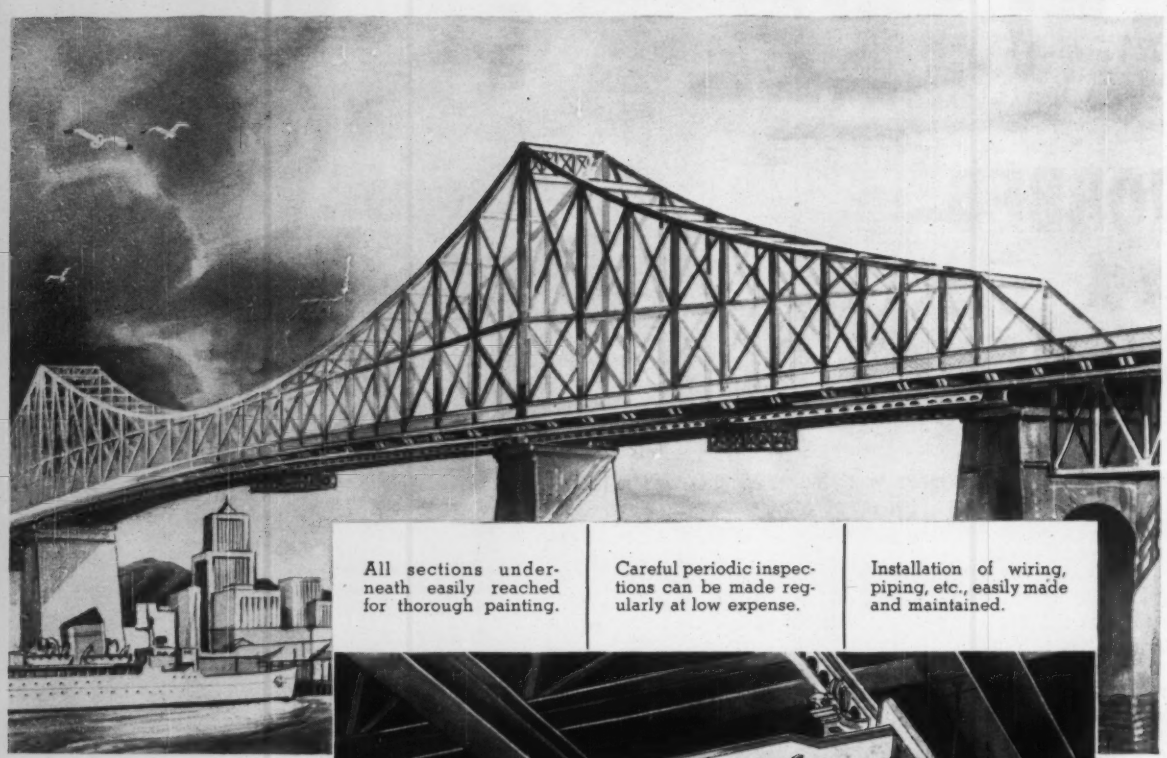
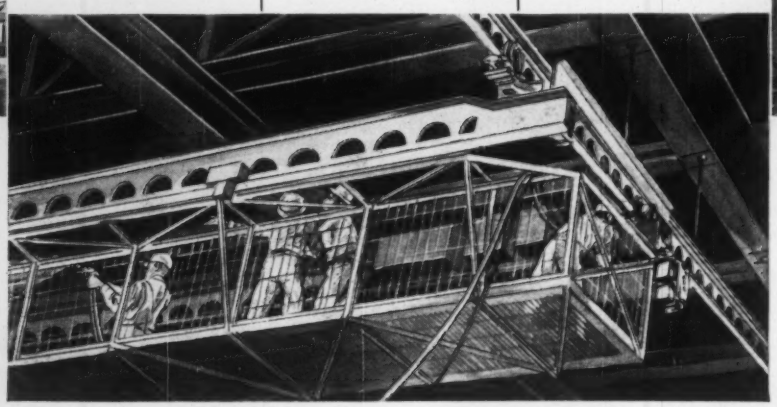
Tramrail Bridge Traveler **Effects Big Savings**



All sections underneath easily reached for thorough painting.

Careful periodic inspections can be made regularly at low expense.

Installation of wiring, piping, etc., easily made and maintained.



Cleveland Tramrail Traveler Systems are available for various bridge designs and constructions. They have been supplied for both manual and motorized operation. Traveler platforms usually accommodate several workers. Protective fencing provides safety.

DURING erection of a bridge, and later for inspection and maintenance, a Cleveland Tramrail Bridge Traveler System can provide sizeable savings.

For the bridge contractor, a Cleveland Tramrail System can greatly speed erection, if installed soon after the main bridge trusses have been set into position. It is a tremendous aid in the assembly of many structural members, for the placing of concrete forms, for installation of conduits, piping, wiring and for painting. Time savings from this work makes it profitable for a contractor to install a Tramrail Bridge System even if not included in the contract.

After the bridge has been completed, a bridge traveler is still mighty valuable and continues to pay dividends. It permits easy, quick inspection of the underside of the bridge. Painting, sandblasting and other maintenance jobs are expedited.

For lower costs on that next bridge job, install a Cleveland Tramrail Bridge Traveler System.

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Obituaries

Charles J. MacGowan; Official of Boilermakers

Charles J. MacGowan, president emeritus of the International Brotherhood of Boilermakers, died last month in Parkville, Mo., at the age of 73.

He had served as president of his union from 1944 to 1954 and was a vice president and Executive Council member of the AFL-CIO.

Born in Scotland, Mr. MacGowan came to the U.S. in 1913 by way of Canada, where he served his apprenticeship. He started his career in the labor movement in 1917 and was international representative and vice president of his union at the time of his election to the presidency in 1944.

Alfred H. Lovell, 76, professor emeritus of electrical engineering at the University of Michigan at Ann Arbor. Since his retirement from the faculty in 1954, he had been a consultant on power installations. He joined the university in 1911, became professor in 1919 and chairman of the electrical engineering department in 1954. He was the author of "Generating Stations —Economic Elements of Electrical Design."

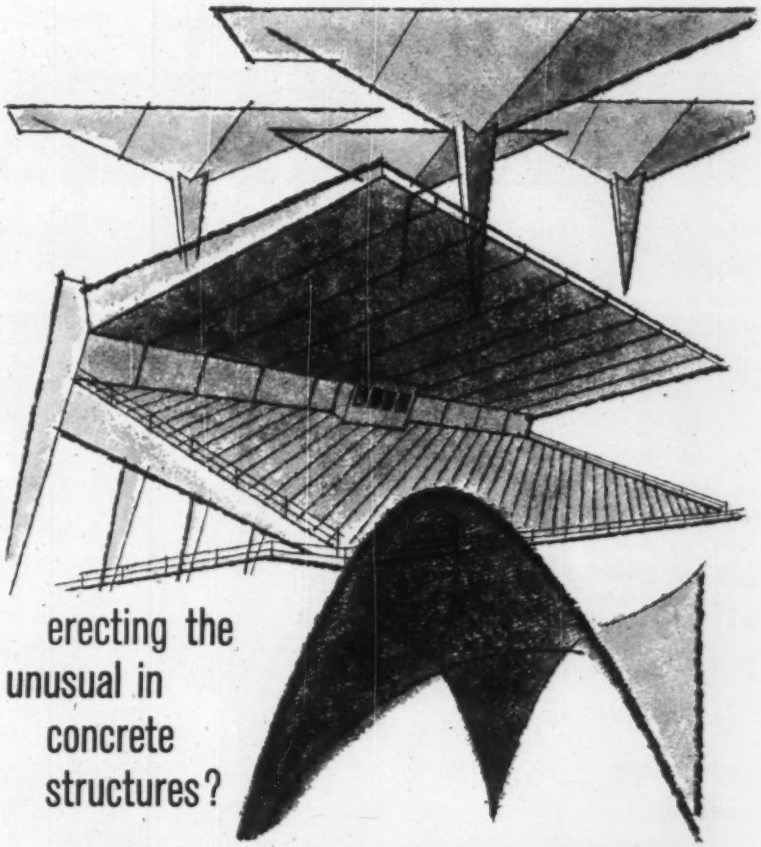
Brig. Gen. Philip G. Bruton, 68, retired from the U. S. Army Corps of Engineers. His last assignment had been Division Engineer for the Corps' Pacific Division. A native of San Francisco, he was a graduate of Oakland Polytechnic Institute in Oakland, Calif.

Maurice F. Stack, 77, a former vice president of the Ebasco International Corp. He graduated from Stevens Institute of Technology in 1905 and later taught there. In 1917 Mr. Stack joined the Electric Bond and Share Co. and was vice president of a subsidiary, the Cuban Electric Co., from 1946 to 1952. He was also a director of Ebasco.

Clinton H. Chalmers, 72, partner in Chalmers and Borton, a Hutchinson, Kan., grain elevator construction firm.

James E. Roach, 57, president of the James E. Roach Construction Co., Cincinnati paving contractors.

Samuel J. Pattison, 69, construction engineer for Boston's bridge division. He served for 47 years in various civil engineering capacities for Boston and was also active in establishing a board of registration for engineers in Massachusetts.



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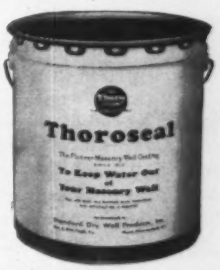

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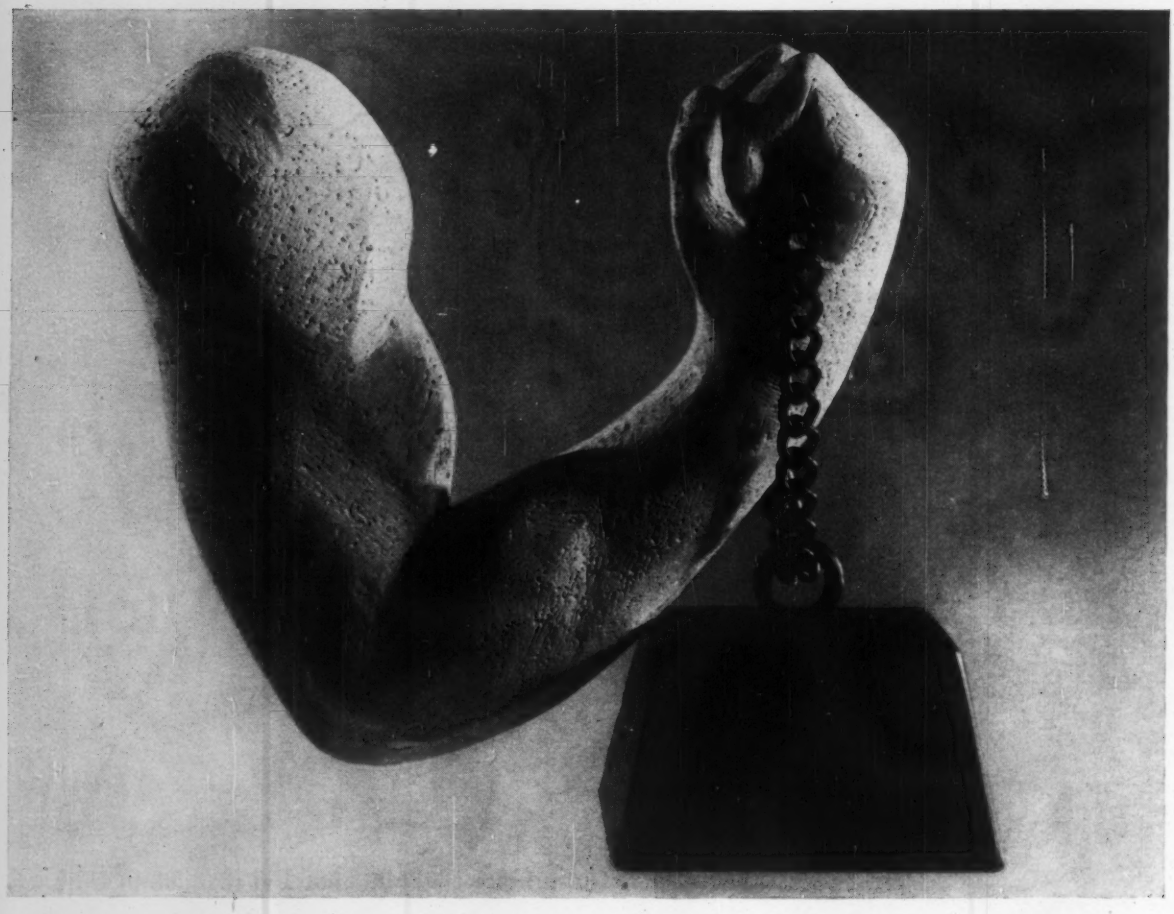

Increase concrete strength 30% with J-M Placewel

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- Increase durability 350% • Increase workability
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J-M Retardwel® is recommended when concreting conditions require longer placing and finishing time. Retardwel delays the initial set of concrete and yet provides higher 24 hour strength.

Architects and engineers the world over have learned that Placewel and Retardwel give them complete control over the concrete they specify. For full information and technical assistance write: Johns-Manville, Box 14, New York 16, N. Y.

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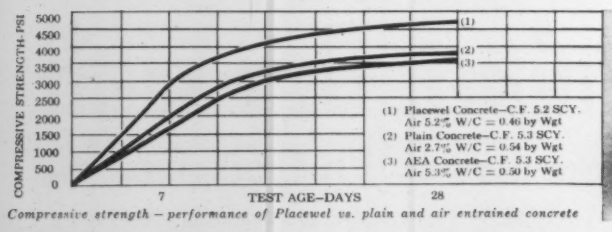
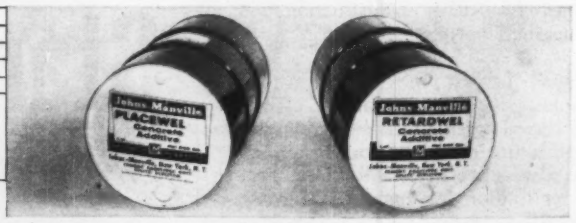


Compressive strength – performance of Placewel vs. plain and air entrained concrete



Books

Steel Erection Guide

ERECTING STRUCTURAL STEEL—By Samuel P. Oppenheimer. 272 pages. McGraw-Hill Book Co., New York, Toronto, London. $9.50.

Engineers in both design and contracting fields will find this volume helpful, as should architects, estimators and others concerned with steel construction.

Starting with detailed illustrations of hoisting machines and other erection equipment, the author follows through on all phases of field work: job analysis, description of the field erection process, estimating and other business and management aspects of steel contracting.

The well-illustrated descriptions of such operations as "jumping" a guy derrick will help fill in the office engineer's understanding of the construction process. And the step-by-step instructions on every phase of steel erection, from planning stage through installation, will provide a good reference work for field superintendents, their assistants, and others directly involved in steel construction.

The illustrated chapters discuss welding and burning, erection of steel stairs and miscellaneous iron, bolts and rivets, rigging and cranes. One chapter is devoted to reinforced concrete construction.

All About Soils

SOILS AND SOILS ENGINEERING—by Reuben H. Karol. 194 pages. Prentice-Hall, Inc., New York, N. Y. $11.65.

This book covers the scope of soils engineering, from soil formation and distribution to the practice of chemical grouting for soil stabilization. It is well illustrated with photographs, charts, graphs, drawings and tables.

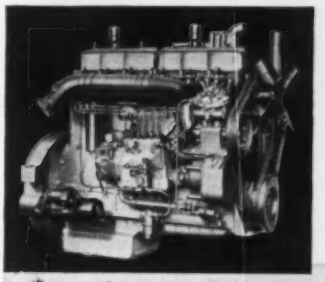
Displaying the range of the book, the chapter on consolidation contains the relatively complex mathematics of Terzaghi's Theory of Consolidation, whereas the chapter on bearing capacity contains empirical methods of calculating bearing value of a soil from field tests.

The book also includes chapters on physical properties, classifications, permeability, field investigations and laboratory tests, stabilizing slopes, and determining shear strength and sub-soil stresses.

The detailed chapter on chemical grouting closes the book with a discussion of an advanced technique of great interest to soils engineers.

(*Books continued* p. 116)

MOST PRODUCTION with WAUKESHA POWER



A typical Waukesha medium six-cylinder Diesel. Other Diesel, gasoline, and gas models—up to 1200 hp.

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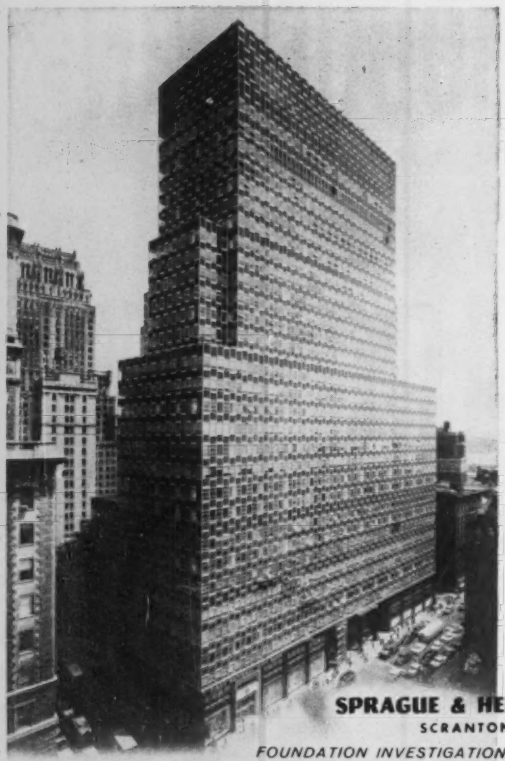

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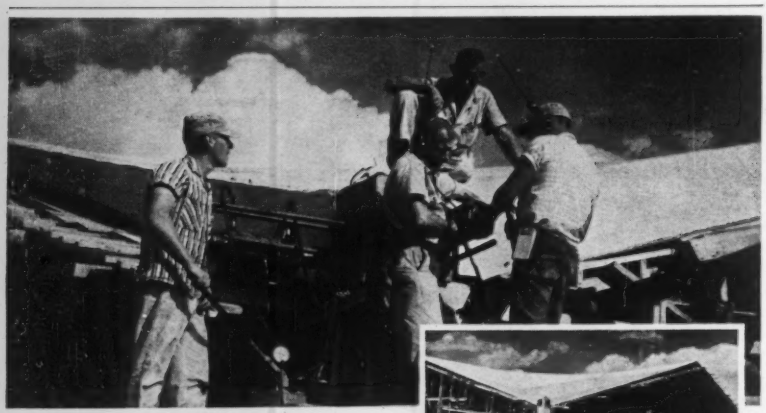

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. . . said Floyd Oakley, head of Oakley Engineering Company, Tulsa.

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. . . Books

Soil Manual Expanded

FIELD MANUAL OF SOIL ENGINEERING.—Fourth edition. 416 pages. Contract-Estimate Engineer's Office, Michigan State Highway Department, Lansing 26, Mich. $5.

The growth and development of the field of soil engineering over the last decade brought about the revision of this manual, purpose of which is to describe the practical application of soil engineering principles to the design, construction and maintenance of highways.

Tailored to fit Michigan soil conditions and their relationship to the work of MSHD engineering personnel, the book contains information of value to other engineers working in other states.

Chapters in the manual are arranged in the sequence in which they are encountered in practice—survey, design, construction and maintenance. Separate chapters cover the glacial history of Michigan and soil physical properties and tests. An appendix contains a glossary of soil terms, sample forms and charts, standard soil testing procedures, and soil profiles and descriptions.

Soil mechanics information has been revised and greatly expanded in the new edition. A comprehensive discussion of current pavement design practices in the state is included.

Just Published . . .

INSULATED MASONRY CAVITY WALLS—Publication 793. Building Research Institute, 2101 Constitution Ave., Washington 25, D.C. $4.00.

PAINTS AND COATINGS—Publication 796. Building Research Institute, 2101 Constitution Ave., Washington 25, D. C. $5.00.

SYMPOSIUM ON BITUMINOUS WATERPROOFING AND ROOFING MATERIALS—STP 280. American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa. $2.50.

MECHANICAL DESIGN OF HYDRO PLANTS: TENNESSEE VALLEY AUTHORITY PROJECTS—986 pages. TVA Treasurer's Office, Knoxville, Tenn. $3.75.

A PICTURE DICTIONARY AND GUIDE TO BUILDING AND CONSTRUCTION TERMS—by Benjamin Lipowsky and Murray Bersten. Arco Publishing Co., Inc., 480 Lexington Ave., New York 17, N.Y. (Paper-bound) $3.00.

PRESSURE VESSEL AND PIPING DESIGN—700 pages. American Society of Mechanical Engineers, 29 West 39th St., New York 18, N. Y. $10.00.

BUILDING DESIGN HANDBOOK—168 pages. Wire Reinforcement Institute, National Press Building, Washington 4, D. C. $3.00.

(*Books continued p.* 118)

3½-yd. Lima 1250 shovel loads blasted rock in Canadian quarry.

Air-controlled Lima 1250 speeds rock loading

If you want to move more rock faster, easier and more profitably—Lima's the shovel for you!

Take the Lima 1250 as an example. Its main and auxiliary functions are air-controlled for smooth precision performance at full capacity operation. Torque converter, with either Diesel or electric power, reduces shock loading . . . makes heavy digging and rock handling easy on both machine and operator. The type 1250 can be knocked down for over-the-road transfer from job to job.

All Limas can be depended upon to boost profits, because they are top-quality machines designed and built to outperform other makes.

This also results in consistently high production with a minimum of downtime and years of trouble-free, low maintenance service.

There's a Lima type and size for every pit and quarry operation. Shovels to 8 cu. yds., draglines variable. Limas easily convert to cranes—up to 140 tons on crawlers. Choice of power; crawler, wagon or truck mounted.

It won't cost a cent to investigate Limas before you buy your next shovel or dragline—and it might pay off handsomely in increased profits and reduced maintenance costs. Talk to Lima owners. Ask for facts and figures from your nearby Lima distributor or write to Construction Equipment Division, Baldwin-Lima-Hamilton Corporation, Lima, Ohio.

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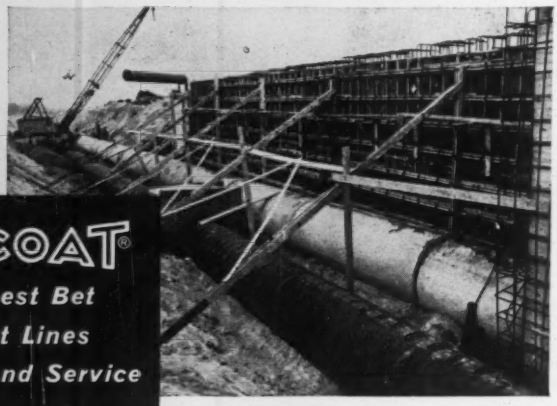
Joints on steel plant water line are TAPECOATED to provide protection equivalent to coating on the pipe.



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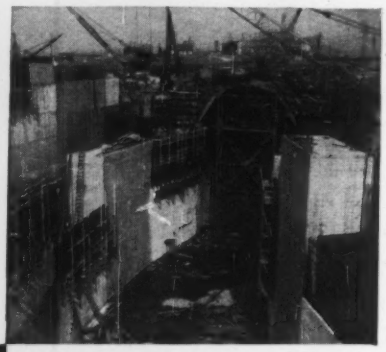

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Merritt-Chapman & Scott engineers report that the Deming pump has had long life, given good service, and has needed less maintenance than a competitive pump doing a similar job.

Want information on Deming's complete line of pumps? Write for Industrial Catalog "E".

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. . . Books

MECHANICAL PROPERTIES OF STRUCTURAL MATERIALS AT LOW TEMPERATURES—A COMPILATION FROM THE LITERATURE—by R. M. McClintock and H. P. Gibbons. 180 pages. Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. $1.50.

CONTROL OF STEEL CONSTRUCTED TO AVOID BRITTLE FAILURE—184 pages. McGraw-Hill Book Co., Inc., 330 West 42nd St., New York 36, N. Y. $4.50.

THE POWER TEAM (A chronicle of the Swedish State Power Board)—Swedish State Power Board, Stockholm, Sweden.

CALIBRATION OF LINE STANDARDS OF LENGTH AND MEASURING TAPES AT THE NATIONAL BUREAU OF STANDARDS—by L. V. Judson. Monograph 15. Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. 15¢.

HIGHWAY NEEDS AND PROGRAMMING PRIORITIES—Bulletin 249. Highway Research Board, 2101 Constitution Ave., Washington 25, D. C. $1.80.

INVENTORY OF ENGINEERS AND SCIENTISTS EMPLOYED IN FLORIDA IN JANUARY 1958 AND EMPLOYMENT PROJECTED TO 1970—University of Florida, Gainesville, Fla.

PUBLIC HEALTH SERVICE FILM CATALOG—Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. 50¢.

PAVEMENT PERFORMANCE CONCEPTS—Bulletin 250. Highway Research Board, 2101 Constitution Ave., Washington 25, D. C. $1.40.

ASPHALTIC CONCRETE CONSTRUCTION—FIELD AND LABORATORY STUDIES—Bulletin 251. Highway Research Board, 2101 Constitution Ave., Washington 25, D. C. $1.00.

A STUDY OF THE GENERATION OF PERSON TRIPS BY AREAS IN THE CENTRAL BUSINESS DISTRICT—by B. C. S. Harper and H. M. Edwards. Queen's University, Kingston, Ont., Canada.

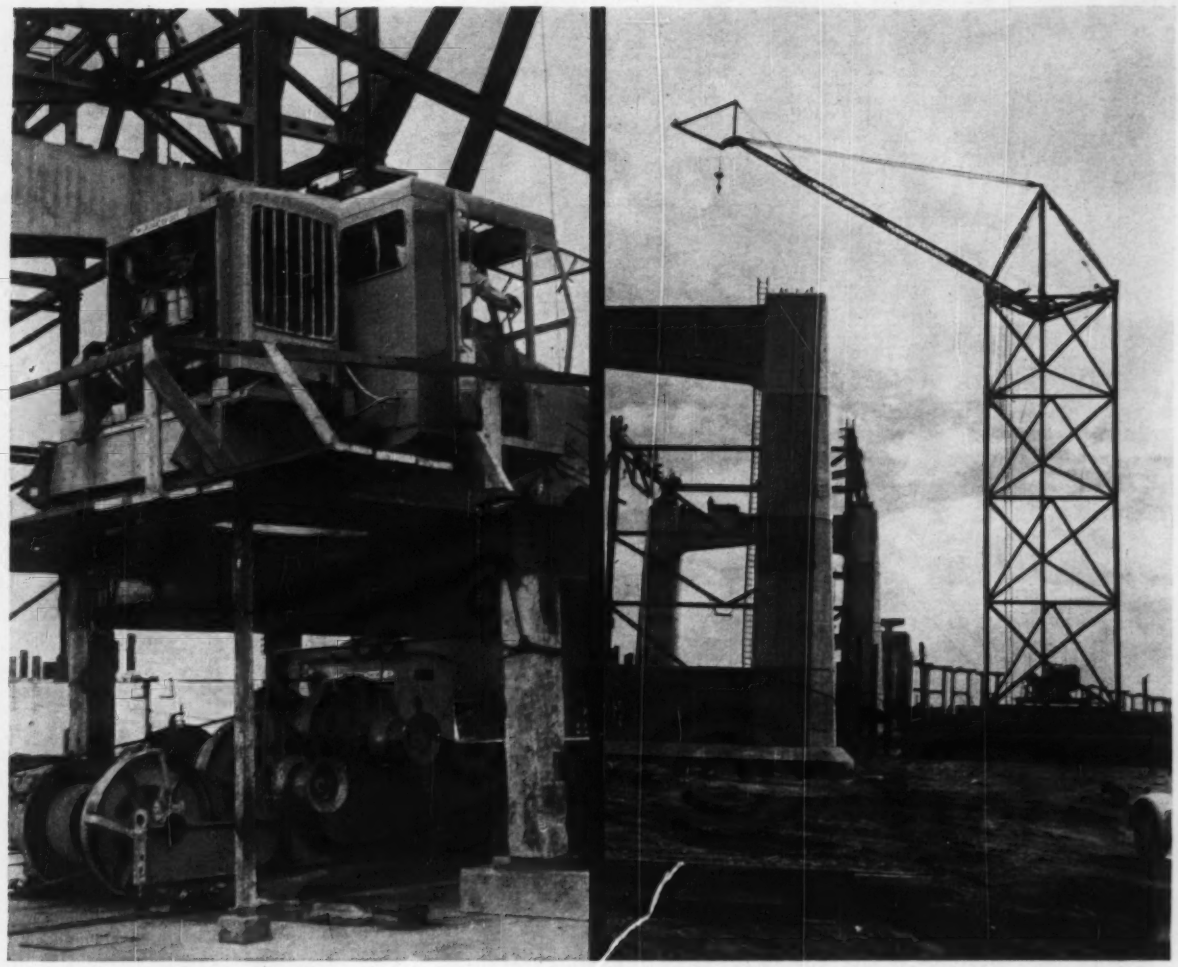
WATER AND AGRICULTURE—by Roy D. Hockensmith. 198 pages. American Association for the Advancement of Science, 1515 Massachusetts Ave., N.W., Washington 5, D. C. $5.00; $4.50 to AAAS members.

SYSTEMS OF UNITS—NATIONAL AND INTERNATIONAL ASPECTS—by Carl F. Kayan. 297 pages. American Association for the Advancement of Science, 1515 Massachusetts Ave., N.W., Washington 5, D. C. $6.75; $5.75 for AAAS members.

NEW WATER FOR A THIRSTY WORLD—by Michael Salzman. 210 pages. Science Foundation Press, 73314 Ascot Station, Los Angeles 3, Calif. $5.95.

ULTIMATE MOMENTS AND SHEARS IN CONTINUOUS REINFORCED CONCRETE BEAMS—by George C. Ernst. 37 pages. University of Michigan Press, Ann Arbor, Mich. $4.00.

TRANSPORTATION LINES ON THE MISSISSIPPI RIVER SYSTEM AND THE GULF INTRACOASTAL WATERWAY 1960—Superintendent of Documents, Government Printing Office, Washington 25, D.C. $2.25.



AMERICAN BRIDGE DOUBLE DECKS CLYDE HOISTS ON BARGE MOUNTED TOWER DERRICK

The two Clyde Hoists used by American Bridge Division of U.S. Steel Corp. were years apart in manufacture. In age and appearance they were very different. But in the important measurements of hoist value they are identical twins.

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Write for Bulletin 34A for specifications on the complete line of Clyde Hoists

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Established 1899
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HOISTS : DERRICKS : WHIRLEYS : BUILDERS TOWERS
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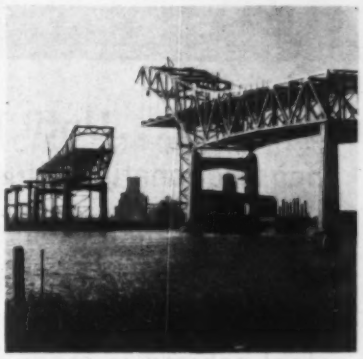
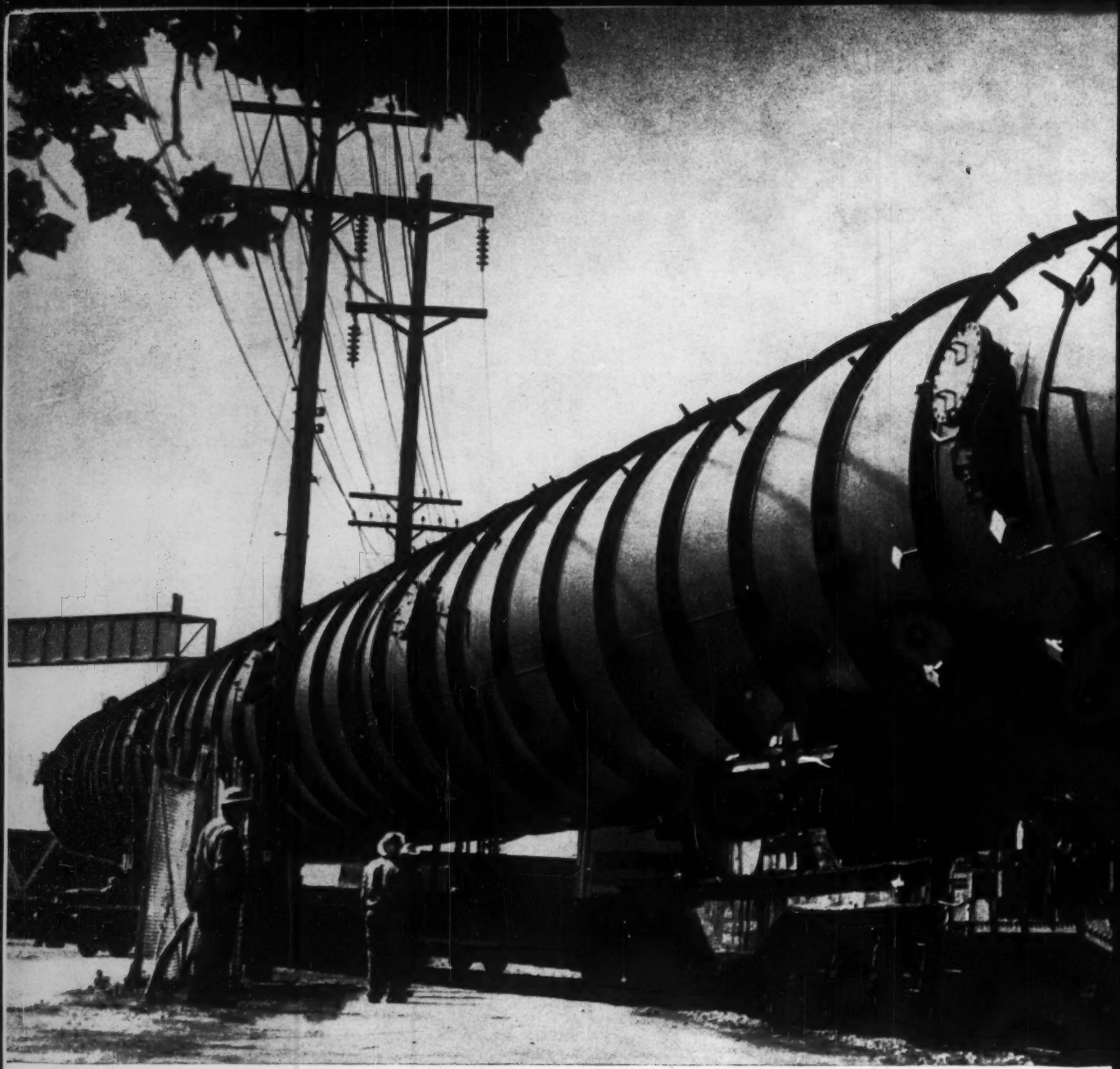
A SUBSIDIARY OF RIC REPUBLIC INDUSTRIAL CORPORATION



American Bridge Division, United States Steel Corporation has a 165 foot, barge-mounted tower derrick to set steel on the center span of the new high bridge at Duluth-Superior, western terminal of the St. Lawrence Seaway. Two Clyde Hoists were used, one to operate the derrick and one to position the barge.



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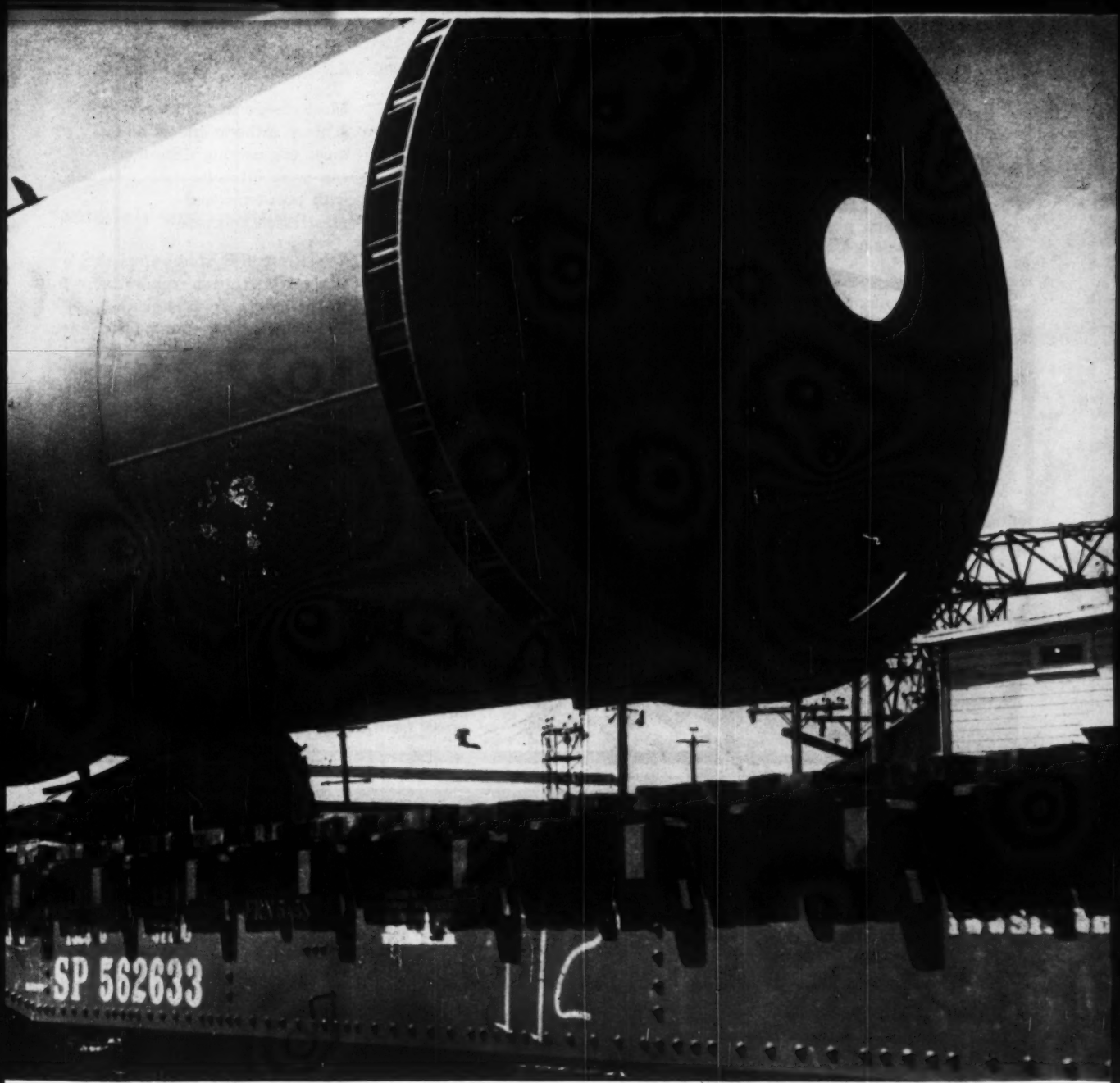

Our Orange, Texas plate shop can handle custom plate work of all kinds and sizes. We have experienced men and the right equipment, high capacity cranes, giant presses and bending rolls, the latest welding equipment, mammoth car bottom furnaces, and complete inspection facilities. We can ship by rail, truck or barge. And anything we make, we can erect. ☐ Write for our booklet on plate fabricating facilities and services.

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American Bridge Division of United States Steel

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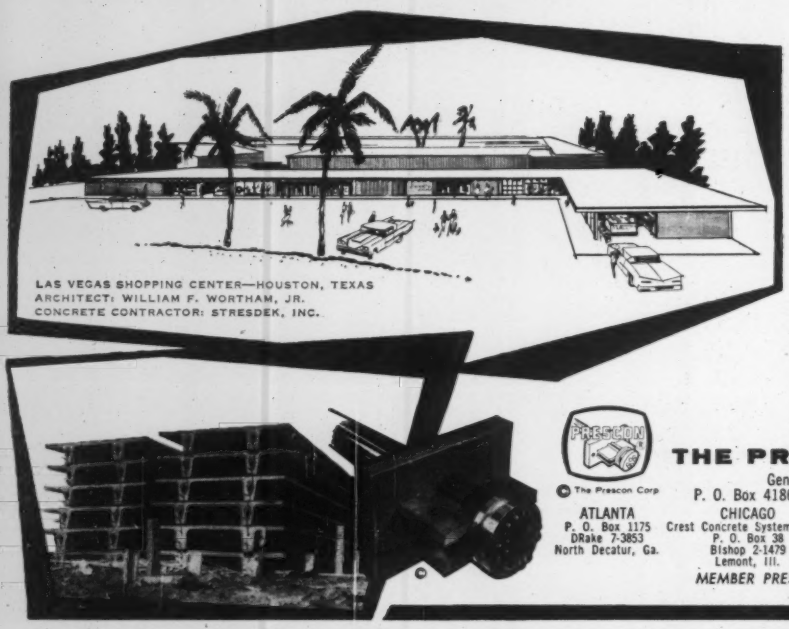
The Prescon System of Post-Tensioning Prestressed Concrete Works for You From Design and Engineering to Completion



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ARCHITECT: WILLIAM F. WORTHAM, JR.
CONCRETE CONTRACTOR: STRESDEK, INC.

More design flexibility to achieve esthetic effects and meet engineering demands can more often be done with post-tensioned prestressed concrete.

The Prescon System offers the simplest and most economical method, both from design and construction standpoints. The system is adapted to either yard or job site use.

If you are not acquainted with design and construction using post-tensioned prestressed concrete and The Prescon System, contact any Prescon Representative. For technical data see Sweet's Catalog.

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DELMAG Diesel Pile Hammers are light in weight yet develop tremendous energy per blow and have proven outstandingly successful under all weather conditions.

Requiring no costly "extras," DELMAG Diesel Pile Hammers are completely self-contained and weigh approximately one-half that of steam hammers of comparable energy rating. This results in a big saving on the size of handling equipment required and makes for a much more mobile pile driving operation.

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From Coast to Coast

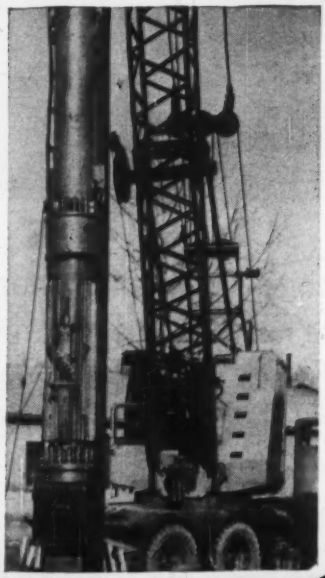
Illustrated literature sent on request

THREE MODELS AVAILABLE:

D-5
9,100 ft. lbs.

D-12
22,500 ft. lbs.

D-22
39,700 ft. lbs.



The Foundation Equipment Corp.
100 Elizabeth St., Newcomerstown, Ohio.

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Materials transportation advantage cuts . . .

New Mexico Highway Costs

Proximity of job site to concrete pipe and cement plants whittled down the unit prices on these items for a 5.596 mile stretch of two-lane New Mexico Highway.

Armstrong & Armstrong, Roswell, N. M., took the $658,964 contract with a bid 2% below the engineers estimate, and just 4% under the second low, Brown Construction Co., Albuquerque. Only preparation of the subgrade is involved in this contract. At a later date, the present road will receive a plant mix surface, and the new road will receive a concrete pavement.

One complete interchange will be included in the new length of road as well as two major concrete box culverts, a frontage road, grading and drainage, and miscellaneous construction through the subgrade.

The project, 12 miles north of Anthony, N. M., parallels the present road, which will be used as a detour, except through the interchange area, where the proposed frontage road will be built first to act as a detour during construction. The surface of the present road through the interchange area will be removed and reused. Roadway markers will be removed, reset, and repainted.

Class A concrete to be used is defined as six bags cement per cy, minimum compressed strength 3,000 psi; class B, five bags per cy, minimum compressed strength 2,200 psi.

Some characteristic wage rates for this job are: air tool and asphalt heaterman, $2.13 per hr; carpenter, $2.83 per hr; concrete finisher, $3.02; electricians, $3.70; structural and reinforcing iron workers, $3.40; bulldozer, $2.75; pile-driver, $3.05; powderman, $2.58; pipe-layer, $2.45; $2.75 per hr for crawler type tractor, $2.21 for pneumatic tractor 50 hp or less and $2.72 for over 50 hp; trenching machine, $2.73; and common labor, $1.86 per hr.

The bidding included:

1C Armstrong & Armstrong, Roswell, N. M	$658,964
2 Brown Constr., Co., Albuquerque, N. M	692,841
3 Skousen-Hise Contr., Albuquerque, N. M	762,228
EE New Mexico State Highway Department	670,163

Bids: 8-26-60 Items	Unit	Quantity	Unit Prices 1C	 2
Structs, remove	ls	job	$600.00	$3,000
Obstructions, remove	ls	job	200.00	500.00
Fence, remove & rebuild	lf	34,680	0.16	0.15
Exc, unclassified	cy	195,225	0.23	0.23
for structs	cy	1,185	1.50	1.50
Borrow, ordinary	cy	267,922	0.24	0.20
Watering	Mgal	26,065	0.10	0.50
Rolling, tamping roller	hr	1,410	7.50	5.00
pneumatic tired	hr	780	5.00	5.00
steel tired	hr	20	15.00	5.00
Roller operation, 50-ton	hr	1,650	7.50	5.00
Tamping, mechanical	hr	1,268	10.00	12.00
Overhaul, station yard	stay	452,191	0.01	0.02
Haul, quarter mile yard	qmy	1,270,128	0.035	0.04
Grading	mi	11.650	2,500	2,500
Guard, cattle 18' roadway	ea	10	1,200	1,500
24'	ea	2	1,730	2,000
42'	ea	2	2,800	3,500
Fence, galv barbed wire	lf	13,665	0.21	0.20
Gates, standard type	ea	2	50.00	50.00
Bracing	ea	60	13.75	10.00
Markers, tp 1, stnd f&p	ea	1	50.00	50.00
Bit mat, prime	bbl	585	6.80	7.00
1 coat surf tr	bbl	135	7.15	7.00
Surf tr, 1 coat cover mat	t	235	8.80	6.00
Conc, cl A	cy	1,839	41.50	50.00
cl B, cut-off walls	cy	429	35.00	45.00
Reinf, for conc structs	lb	234,691	0.145	0.14
Pipe, conc stdn reinf 24"	lf	788	5.50	5.85
30"	lf	3,652	5.95	6.26
36"	lf	2,440	8.85	8.80
42"	lf	4,054	12.10	11.60
48"	lf	5,914	15.25	15.00
CMP, culv 24"	lf	208	6.60	6.85
Markers, rdwy, remove, reset, repaint	ea	35	7.00	6.00
Surface, exist, remov reuse	cy	3,560	1.05	1.50
Conc bri beams, prestressed 36-32-16	ea	4	625.00	640.00
36-35-18	ea	4	655.00	580.00
45-58-36	ea	12	1,475	1,400
Exc, for bri structs	cy	358	2.50	4.00
Conc, cl A bri superstruct	cy	243.93	72.00	60.00
substruct	cy	185.56	61.00	60.00
Steel, structural	lb	11,831	0.30	0.30
bri rail metal	lf	497.6	5.45	7.60
Piles, treated timber, f&p	lf	3,176	4.00	3.00

Starting date: 10 days after award
Completion time: 175 working days

20 Miami Grade Crossings Get Prestressed Piling

This $3,749,000 contract for the Florida State Highway Department went to the A. F. Foster Bridge Corp., Ojus, Fla. The Foster bid nudged out the second low of the Allen M. Campbell Co., Tyler, Tex., by only $76,906—a 2% difference. Ballenger Paving Co., Inc., & Structures, Inc., Greenville, S. C., high of nine bidders, was out by 15%.

The work covers the southwest quadrant of Miami's 36th St. Interchange. It includes grading, six and eight lane divided cement pavement, limerock base with concrete surface binder and surface treatment, limerock base shoulders with surface treatment, construction of 1,750 lf of reinforced concrete retaining walls founded on prestressed concrete piling, twenty grade separations bridges on concrete piers founded on prestressed concrete piling, except one structure of concrete slab deck on welded structural steel plate girders supported on concrete piers founded on prestressed concrete piling.

Aluminum handrails, roadway lighting and fences will also be supplied and placed. All of the items will be supplied by the contractor except fill material, which the Florida Highway Department has in stockpile. Concrete to be used is defined as 1.5 bbl cement per cy content.

The total project involves 4,425 lf of bridges. Its length is 0.537 miles, State Rte 9-A and 25 between 30th and 38th Sts in Miami.

Prevailing wage rates include: skilled labor, $2.00-$3.77 per hr; semiskilled, $1.35-$2.29/hr; and common, $1.25/hr.

The bidding included:

1C A. F. Foster Bridge Corp., Ojus, Fla	$3,749,000
2 Allen M. Campbell Co., Tyler, Tex	3,825,906
9 Ballenger Paving Co., Inc., & Structures, Inc., Greenville, S.C.	4,436,602
EE State Highway Department	4,199,000

Bids: 5-26-60 Items	Unit	Quantity	Unit Prices 1C	 2
Traffic maint A	ls	job	$14,000	$15,000
B	ls	job	1,000	1,600
Bldg rem A	ls	job	28,000	11,500
B	ls	job	3,000	1,100
Clear & grub A	ls	job	15,000	25,000
B	ls	job	1,000	2,050
Exc reg, sew storm tr	cy	13,580	0.85	1.35
Grdg, incl borrow A	ls	job	443,787	522,764
B	ls	job	25,000	31,400
Stabilizing A	ls	job	25,000	34,600
B	ls	job	2,500	2,100
Calcium chloride, dust cont	t	32	85.00	93.00
Base, limerock 6½" thk	sy	14,601	1.00	0.85
8½"	sy	46,693	1.10	0.90
Conc, cmt pave 9" thk	sy	60,232	5.00	5.60
rein 9"	sy	5,485	9.00	9.60
Bit mat, pint mx & tack coat	gal	79,505	0.15	0.155
Mat, cover for surf tr tp 1-B shoulder pav	cy	184	8.00	11.00
Alt 6a bit, surf tr Ac150-200 Penn	gal	13,905	0.25	0.20
6b asph, emul	gal	16,686	no bid	no bid
Asph cemt surf crse, tpl 1½" thk	sy	18,332	0.75	0.80
1" & bind, incl st 2"	sy	31,750	1.00	1.30
surf crse	t	50	12.00	18.00
Conc, clA, bri	cy	13,074	53.00	51.80
ret wals	cy	2,950	40.00	35.40
culv & tr slab	cy	1,888	60.00	45.80
cl NS endwalls&misc.	cy	44	75.00	110.00
Steel, reinf	lb	2,416,485	0.11	0.101
struct, shoe assmbl.	lb	120,760	0.32	0.355
superstruct	lb	490,000	0.185	0.185
Inlets	ea	132	325.00	340.00
Manholes	ea	24	400.00	450.00
adjusting	ea	1	250.00	215.00
Conc, pipe culv, storm sew 15"	lf	2,755	4.50	4.90
18"	lf	3,496	5.00	6.50
24"	lf	874	7.25	9.00
54"	lf	978	25.00	29.00
CMP sulv, bit ctd & paved SS 15"	lf	1,238	6.00	5.40
Underdrains, 6"	lf	1,753	3.00	3.40
Beams, prestr tp II A	lf	650	10.25	13.60
B	lf	1,173	10.25	11.20
C	lf	2,876	10.30	12.10
D	lf	4,351	10.50	12.00
E	lf	5,434	11.00	12.00
F	lf	440	11.00	14.50
G	lf	7,009	10.80	12.80
H	lf	917	11.00	14.20
tp III A	lf	302	13.75	14.60
B	lf	1,000	13.25	14.90
C	lf	1,199	13.65	14.90
D	lf	776	13.75	15.10
E	lf	315	13.75	15.10
F	lf	385	13.85	17.10
G	lf	286	14.40	17.60
H	lf	3,183	14.50	16.95
I	lf	979	14.85	19.00
J	lf	240	15.75	18.70
tp IV A	lf	582	18.80	20.30
B	lf	361	19.25	21.30
C	lf	1,060	20.00	22.40
D	lf	930	20.50	23.40
E	lf	803	21.00	24.00
F	lf	1,540	22.00	24.60
Conc, precast prestr piling 14" sq	lf	10,500	4.25	3.40
18" sq	lf	33,799	4.95	4.80
driven 14" sq	lf	10,500	2.50	1.60
18" sq	lf	33,799	2.50	1.60
Test piles, unloaded, prestr 14" sq	lf	200	20.00	21.50
18" sq	lf	935	20.00	21.50
loads 90 tons	ea	13	100.00	110.00

Completion time: 510 calendar days

Materials Prices

Monthly Market Quotations by ENR Field Reporters

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS* billet	RIVETS ½-in. struc-tural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	STEEL RAILS Per Net Ton Light	TRACK SUPPLIES Angle Bars	TRACK SUPPLIES Std Spikes	TRACK SUPPLIES Tie Plates	TRACK SUPPLIES Track Bolts
Birmingham Area	$5.50	$5.30	$5.675	$12.25	.....	$110.50	$130.00	$6.975	$9.75	$6.60	.....
Chicago Area	5.50	5.30	5.675	12.25	$6.50	110.50	130.00	6.975	9.75	6.60	.....
Pittsburgh Area	5.50	5.30	5.675	12.25	6.50	110.50	130.00	6.975	9.75	6.60	$14.75
Buffalo Area	5.50	5.30	5.675	12.25	6.50	110.50	130.00	6.975	9.75	6.60	14.75
Cleveland	.....	.....	5.675	12.25	6.80	.....	.....	.....	.....	.....	14.75
Youngstown Area	.....	.....	5.675	.....	.....	.....	.....	.....	9.75	.....	.....
Geneva	5.50	5.30	.....	.....	.....	.....	.....	.....	.....	.....	.....
Los Angeles	6.30	.....	6.875	.....	6.50	.....	.....	.....	9.75	6.875	.....
Pueblo	.....	.....	.....	.....	.....	.....	.....	6.975	9.75	6.60	.....

* Fairless Works, $5.675.

IRON AND STEEL PRODUCTS—F.O.B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	Extras W	REINFORCING BARS Per 100 lb., base price 5 tons to carload lot New billet	REINFORCING BARS Rail steel	Extras, New York:	EXPANDED METAL LATH Per 100 sq. yd., carload lots Std. diamond mesh. 3.4 lb.	EXPANDED METAL LATH Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING Per 100 sq ft., carload lots fob mill
Atlanta	7.29–8.29 *Es V*		8.75	$8.75		$53.00 *S*	$57.00 *S*	
Baltimore	9.70		9.00 *T*	.....		44.50	49.00	
Birmingham	9.00 *ty*		8.51–9.94 *ty V*	8.51–9.94 *ty*		61.00 *p K*	67.00 *p K*	
Boston	8.21–9.31 *Kzz V*		8.75 *t*	8.75 *t*		49.50 *K*	54.00 *K*	
Chicago	6.96–8.23 *yz V*		6.70–6.90 *g V y*	6.70–6.90 *g V y*		52.00 *‡U*	63.00 *‡U*	
Cincinnati	7.52–8.79 *st y z V*		8.16 *‡*	.....		44.50 *Kg*	49.00 *mn Kg*	
Cleveland	7.35–8.62 *s y z V*		6.70 *st*	.....		46.50 *KL*	51.00 *KL*	
Dallas	7.71–9.49 *M s V*		9.00	9.00		44.00 *u*	48.50 *w*	
Denver	8.12 *cK*		9.25 *c*	.....		52.00 *n*	57.00 *n*	
Detroit	7.52–8.79 *RM s V y*		7.37 *Q*	11.85 *Q*		67.00 *O*	74.00 *O*	
Kansas City	8.78 *sT*		8.21 *N*	.....		51.00	55.50	
Los Angeles *f*	8.44–9.59 *dkts V*		7.35 *frt*	.....		55.00 *S*	64.00 *S*	
Minneapolis	7.78–8.17 *yz V*		9.26 *T*	9.26 *T*		44.50 *K*	49.00 *K*	
Montreal	7.90–8.50 *iCF*/8.20–8.90 *AiF*		7.00/7.50 *FGi*	7.00/7.50 *FGi*		65.70 *h*	70.20 *h*	
New Orleans	.....		8.00 *gkz*	.....		50.00 *K*	55.00 *K*	
New York	8.02–8.84 *Vzz*		8.60 *ty*	8.60 *y*		50.00 *n*	58.00 *nz*	
Philadelphia	7.10–8.40 *zz V*		8.60 *ty*	8.60 *y*		48.00 *‡U*	52.50 *‡U*	
Pittsburgh	6.96–8.23 *yz V*		8.23 *wy*	8.23 *y*		58.50 *‡rw*	64.50 *‡rw*	
St. Louis	7.19–8.45 *stzz y V*		7.35 *‡tz Q*	7.35 *‡tz Q*		61.00 *wz K*	62.00 *wz K*	
San Francisco	8.43–10.34 *zz V*		9.85 *iS*	.....		53.00 *S*	58.00 *S*	
Seattle	8.30–10.49 *aDz V*		8.85 *DM*	.....		67.00 *‡nD*	73.50 *‡nD*	
Toronto	9.20 *H*		7.40	7.40		49.50 *pq I*	44.85 *qJ*	

EXTRAS, per cwt—*Quantity (applies to LCL shipments only): under 1,000#, +$1.20; 1,000–1,999#, +$1.50; 2000–4999#, +80¢; 5000–9999#, +60¢; 10,000–19,999#, +40¢; 20,000–29,999#, +30¢; 30,000–39,999#, +20¢; 40,000# & up, none. ◆Sizes: #2 +$2.50; #3 +$1.40; #4 +$1.00; #5 +70¢; #6, #7, #8, #9, #10, #11 +50¢. ◆Bending: heavy, +90¢; light +$2.20. ◆Engineering (details and placing from designs by others): over 500 tons, +45¢; 200–499 tons, +50¢ but not over $2000; 30–74 tons, +75¢ but not over $975; 5–19 tons, +$5¢ but not over $1500; 75–199 tons, +65¢ but not over $1000; under 5 tons, +$1.00 but not over $65. Min. charge $25. Design only: +60¢.

Quantity extras per cwt: item; 10,000# and over, base, 5,000—9,999#, +10¢, 2,000—4,999#, +35¢, 1,000—1,999#, +85¢, 400—999#, +$1.75, 100—399#, +$1.75, under 100#, +$1.75. Order; 20,000# and over, base, 10,000—19,999#, +10¢, 5,000—9,999#, +20¢, 2,000—4,999#, +40¢, 1,000—1,999, +$1, 400—999, +$2, under 400, +$3.

*‡ Delivered *• Aver. of Canadian & American *f add 4% sales tax *a 2000–4999# *b 10,000–19,999#, fob city *c 20 tons or over *d 10,000–29,999# *e Intermediate struct'l *f Incl. delivery in free zone *g CL *h list price; dominion tax exempt; add provincial and municipal taxes *i add provincial and municipal sales taxes *l Intermediate and hard grade *k fob city *l delivered; contractor to do unloading *m copper alloy *n LCL *o asphalt coated *p 500 sq. yd. or more. *q 2.5 lb *r less 2% disc. for cash *s 10,000# item in 20,000# order *t less ¼% disc. 10 days *u add 20¢ del. *v incl 15¢ del. *w truck lots. *x add 2% sales tax *y add 15¢ del. *z add 10¢ del. *A American made. *C Canadian made. *D ¼% for cash. *E 30,000# or over. *F Federal tax exempt for bldgs. *G add 10¢ del. *H 8.85 without tariff charges. *I 3 lb $80.00. *J 4 lb $47.50. *K less 2% disc. 10 days *L F.o.b. Youngstown plant *M 5,000–9,999# *N 2,000–19,999# *O 100 sy lots *Q 5 tons to CL *R: revised *S less 2% disc. 10th *T less ¼% disc, 10th of mo. *U less 2% disc 10 days *V varies according to type and size *W Chicago, Cincinnati, Cleveland, Dallas, Detroit, New York, Philadelphia, St. Louis, and Pittsburgh.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE PRICE INDEX◆a	ASBESTOS CEMENT PIPE T per lin. ft. 6" Press Cl. 150	ASBESTOS CEMENT PIPE T per lin. ft. 12" Sew Cl. 1800	CLAY SEWER PIPE Per ft., delivered, car load ASTMC 13-55 8 in.	CLAY SEWER PIPE Per ft., delivered, car load ASTMC 13-55 12 in.	CLAY SEWER PIPE Per ft., delivered, car load ASTMC 200-55T 24 in.	CLAY SEWER PIPE Per ft., delivered, car load ASTMC 200-55T 36 in.	CLAY DRAIN TILE† Per 1,000 ft., car load lots, f.o.b. ASTMC 4-55 6 in.	CLAY DRAIN TILE† Per 1,000 ft., car load lots, f.o.b. ASTMC 4-55 8 in.	CONCRETE SEWER PIPE‡b Per ft., delivered ASTMC 14-55 12 in.	CONCRETE SEWER PIPE‡b Per ft., delivered ASTMC 14-55 24 in.
Atlanta	130.6	$1.52/1.69	$2.36/2.48	$0.55*r*	$1.04*r*	$4.50*r*	$12.60*r*	$209.00*er*	$334.00*r*	$0.95 m *Kr*	$3.75 m *Kr*
Baltimore	140.2	1.61/1.69	2.19/2.30	.665	1.20	3.05	12.71	187.80	289.20	1.01	2.75
Birmingham	125.8	1.52/1.69	2.26/2.37	.50*r*	.95*r*	4.14*rw*	13.50*rw*	295.00*rz*	430.00*rz*	1.75*rS*	2.75*rS*
Boston	143.2	1.63/1.71	2.19/2.30	.84*qrtL*	1.55*qrtL*	6.39*qrtM*	.....	244.00*r*	348.60*r*	1.56*S*	3.60*S*
Chicago	140.0	1.48/1.69	2.19/2.30	.93*rm*	1.78*rm*	7.52*rm*	21.16*rm*	220.00*Br*	330.00*Br*	1.30	4.00
Cincinnati	135.6	1.63/1.71	2.19/2.30	.56*Rt*	1.11*Rt*	4.50*Rt*	13.22*R*	177.50*R*	274.60*R*	.85*rAB*	3.25*rAB*
Cleveland	141.8	1.63/1.71	2.19/2.30	.66*BC N*	1.27*tBC*	8.47*tBC*	23.45*tBC*	179.40 m *BC*	276.60 m *BC*	1.35	2.40*P*
Dallas	137.9	1.63/1.71	2.26/2.37	.575*‡B*	1.09*‡B*	4.75*‡B*	10.53*‡bB*	.....	.....	1.27*BD*	2.95*BD*
Denver	145.1	1.71/1.80	2.36/2.48	.56*nr*	1.00*nr*	4.98*r*	.....	460.00*nr*	640.00*nr*	1.05*m*	3.50*m*
Detroit	142.1	1.63/1.71	2.19/2.30	.97*nk*	1.86*nk*	7.48*nk*	19.95*nk*	212.00*mk*	327.00*mk*	1.40*k*	5.23*k*
Kansas City	138.6	1.49/1.71	2.26/2.37	.62*r*	1.12*5r*	6.32*4br*	16.86*r*	315.00*r*	625.00*r*	1.70*r*	4.25*r*
Los Angeles *f*	148.6	1.67/1.79	2.19/2.30	.82*bl*	1.78*blS*	7.19*blS*	16.90*blS*	410.00*lS*	590.00*lS*	1.24*nE*	3.66*fnE*
Minneapolis	145.0	1.53/1.75	2.26/2.37	1.00*oB*	1.80*oB*	7.75*oB*	.....	.....	.....	2.19*DFH*	6.31*DFH*
Montreal	.....	.....	.....	1.13*u*	2.00*u*	7.00*u*	13.50*u*	288.00	545.00	1.17*D*	3.11*fpD*
New Orleans	132.4	1.61/1.69	2.26/2.37	.566*r*	1.078*r*	5.65*r*	.....	240.50*pr*	566.00	1.41*ilR*	3.76*il*
New York	138.6	1.63/1.71	2.19/2.30	.94	1.76*R*	12.89	35.61	240.81	369.84	1.50*‡B*	3.60*‡B*
Philadelphia	137.9	1.61/1.69	2.19/2.30	.75*‡*	1.44*‡*	9.40*‡r*	25.57*‡r*	220.00*‡*	330.00*‡*	1.50*‡h*	4.00*‡h*
Pittsburgh	142.9	1.63/1.71	2.19/2.30	.66*K*	1.27*K*	4.95*K*	12.92*K*	197.00	302.00	1.66*DS*	3.93*DB*
St. Louis	135.7	1.48/1.69	2.26/2.37	.62*r*	1.23*r*	5.10*r*	12.95*rS*	200.00*r*	350.00*r*	1.75*i*	4.05
San Francisco	148.6	1.67/1.79	2.19/2.30	.86*‡d*	1.86*‡d*	7.53*‡d*	18.00*‡d*	360.00*‡l*	620.00*‡l*	1.05*‡Q*	3.30*‡Q*
Seattle	149.0	1.71/1.80	2.19/2.30	.88*bk*	1.86*kb*	7.61*k*	.....	260.00*ck*	.....	1.90*ky*	4.50*ky*
Toronto	.....	.....	.....	.80*F*	1.50*F*	6.00*F*	.....	185.00*F*	305.00*F*	1.27*F*	5.19*F*

WROUGHT STEEL PIPE (Full standard weight) Discount from list; see footnote

	Black %	Galv. %	3½ to 6 in.,* Black %	3½ to 6 in.,* Galv. %	2½ & 3 in.,* Black %	2½ & 3 in.,* Galv. %
Lorain, Ohio	.....	.....	+19.50/	.....	13.75	+3.50
Aliquippa, Pa.	.....	.....	+14.50a	.....	13.75	+3.50
Sparrows Pt., Md.	.....	.....	+15.50a	.....	17.35	+Last
Benwood, W. Va.	3.25	+14.50a	+3.50	+3.50	13.75	+3.50
Youngstown, O.	3.25	+15.50a	+3.50	+3.50	13.75	+3.50
Indiana Harbor Ind.	3.25a‡b	+13.50a‡b	+1.75/	+1.50	13.75	+4.50
Sharon, Pa.	3.25a	+14.50a	3.35a	+Last	13.75	+2.50
Wheatland, Pa.	.50a‡e	+14.50a	.....	.....	13.75	+3.50
Elra, Pa.	.....	.....	.....	.....	13.75	+3.50
Fontana, Calif.	9.75a‡b	+27.50a‡b	+3.50	+16.50	0.75	+16.50

*Threaded and coupled. a 3½ to 4 in. b: to 1
5 and 6 in. c 6 in. d Seamless 5 in.

*‡ Extra quality. *‡ delivered. *f add 4% sales tax *a PRICE INDEXES or CENTRIFUGAL CAST IRON PIPE (Include carload freight allowed to city). These also serve as the HISTORICAL RECORD of THE $ PER NET TON PRICE of CLASS B, B&S, PIT CAST IRON PIPE. F.O.B. Foundry Price Indexes Birmingham, Ala., 125.8; Burlington, N. J., 134.6. For explanation of index see ENR Sept. 29, 1955 page 139. *b Extra strength. *c 4-in., $130. *d SS361-A. *f 21 in. *g culvert pipe; reinf., ASTM C 75-56. *h reinf., ASTM C 75-54. *i reinf., ASTM C 76-55. *j centrispun. *k ess 2% disc. for cash. *l fob plant. *m truck del. *n LCL del., fob truck. *p less 5% disc. 10th. *q freight allowed to destination in city. *u 35,000# minimum. *r less 2% disc. 10 days. *s 1 ft lengths. *u CSA A 60. *v standard strength. *w SS: add 20% for d.s. *x fob city. *y Reinforced. *z Upper value in range based on both truck lots and less than truck lots, fob city; lower value truck lots delivered. *A single strength. *B truckload. *C less 2% disc. 15th. *D ASTM 76-57. *E less 1% disc. 10 days. *F less 2% disc. 30 days. *G LCL. *H CL. *I fob origin, freight allowed. *J reinf. B14-15. *K Less 2% disc. 15 days. *L ASTM 13-57. *M ASTM 200-57. *N 2 lengths. Truckiots. *O add 2% Sales Tax. *P 18 in. *Q less 1% disc. 10th. *R revised to show carlot instead of truckiot. *S ASTMC 72, 12" 1.55, 24" 4.00. *T Second price transite pipe.

WROUGHT STEEL PIPE, butt or continuous weld: Deduct (—) or add (+) these "discounts" from or to the following carlot list prices to get mill prices. Price per ft. (based on approx. $200 per net ton): 2½ in., 58½¢; 3 in., 78½¢; 3½ in., 92¢; 4 in., $1.09; 5 in., $1.48; 6 in., $1.92. Add freight for destination price.

WROUGHT IRON PIPE, lap weld: List prices per ft. same as for wrought steel pipe, but add these "discounts" to get Pittsburgh mill price. 2½ to 3 in., black 106%, galv. 139%; 4 to 6 in., black 103%; galv. 133%. Add freight for destination price.

See following ENR issues for OTHER PRICES:

- Wood Products, Glass, Explosives, Chemicals: Last, Oct. 20; Next, Nov. 24.
- Clay Products, Lime, Plaster, Paint, Roofing: Last, Oct. 27; Next, Dec. 1.
- Wage Rates, Building Board, Lath, Insulation: Last, Nov. 3; Next Dec. 1.
- Cement, Aggregate, Ready Mixed Concrete, Asphalt: Last, Nov. 10; Next, Dec. 8.

Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, MARIE MORAVSIK, ELEANOR QUERET, Reports, J. H. WEBBER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

Mass., Lowell—BA 11/22—City, P. Wks. Dpt., City Hall, 1.9 mi. 36 in. water mains, Merrimack River to site new filtration plant. $240,000. Whitman & Howard, Inc., 89 Broad St., Boston, engr. CD 8/25.

▲ **Mass., Pittsfield**—BA 12/7—City, Sewer Comn., Dpt. P. Wks., 33 Pearl St., Contr. No. 3, sewage treatment plant. $1,000,000. Warren C. Obes, 83 Newbury St., Boston, archt. Camp, Dresser & McKee, 6 Beacon St., Boston, Mass., engrs. CD 10/28/59.

BUILDINGS—BA

Mass., Agawam — HOUSING FOR THE ELDERLY — BA 12/5—Town Housing Auth., 36 Main St., housing for the elderly, North Westfield St., Proj. 667-1. $400,000. Reinhardt Assoc., Inc., 1387 Main St., Springfield, archt. CD 3/16.

HEAVY CONSTRUCTION—LB & CA

▲ **MAINE**—State Hy. Comn., Augusta,

Me.—**The Lane Constr. Corp.**, Meriden, Conn., Ca $1,405,732, (3 bidders), b. conc. and c. conc. road 8.068 mi. City of Portland and towns of Falmouth, Cumberland and Yarmouth, FPA Nos. I-295-3(7) 51, I-295-3(8)55 and I-95-4(11)55, Cumberland Co., CD 10/17;

Me.—**Owen M. Taylor & Son, Inc.**, Box 14, Winthrop, Me., CA $185,589, (5 bidders), bit. gravel road 3.21 mi. Lovell, FASP No. S-0131(4), Oxford Co. Bids Nov. 2. CD 10/14.

BUILDINGS—LB & CA

▲† **K. & C. Constr. Co.**, 2 Lafayette St., New York, N. Y., CA $8,207,000, 500-unit CAPEHART HOUSing at Submarine Base, Second Increment, Spec. 31970-601, GROTON, CONN. Area Public Works Office, 3rd Naval Dist., 90 Church St., New York, N. Y. CD 8/23.

DeLuca Constr. Co., 27 Crescent St., Glenbrook, Conn., CA Est. $500,000, MEETING HOUSE and CHURCH SCHOOL, Sound Beach Ave., OLD GREENWICH, CONN. First Congregational Cchurch, 108 Sound Beach Ave., Old Greenwich, Conn. Bids Sept. 27, awarded Sept. 29. CD 10/21, under LB.

Bessoni Bros., Inc., 48 Atlantic St., New Britain, Conn., CA $500,000, 6 stores, 55,000 sq. ft., SHOPPING CENTER, Twin City Shopping Plaza, Newington Ave., NEWINGTON, CONN. Irving Eisenbaum, 126 Brewster Rd., West Hartford, Conn. Roger E. Gallicher, 37 Overlook Terrace, Simsbury, Conn., archt. Awarded Nov. 2.

Fabrizio & Martin, Inc., 1082 Post Road, Darien, Conn., LB $734,200, (6 bidders), Proj. BI-D-224. CLASSROOM BLDG., Stamford Branch, University of Conn., STAMFORD, CONN. State Pub. Wks. Comr., 165 Capitol Ave., Hartford, Conn. Bids Nov. 2. CD 10/12.

▲ **Joseph F. Kelly Co., Inc.**, 184 Front Ave., West Haven, Conn., CA $4,952,000, HIGH SCHOOL, WEST HAVEN, CONN., Town, Bd. Educ., 270 Main St., West Haven, Conn. Bids Oct. 21. CD 10/26, under LB.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

N. Y., **Brooklyn**—KATE WOLLMAN MEMORIAL RINK, etc.—BA 11/21—Comr. Parks, Arsenal Bldg., Central Park, 64 St. and 5 Ave., New York, Zone 21, general contract Kate Wollman Memorial Rink and service and concession bldg. incl. site development abutting lake, west of Ocean Ave., Prospect Park, Contr. No. B-73-260, Brooklyn Boro. Plans deposit $10 each. Bids Oct. 24 rejected, LB $396,432. CD 10/26, under LB.

† **New York and New Jersey**—CRANES and DAVITS, etc.—BA 11/29—U.S. Eng., 111 E. 16 St., New York 3, N. Y., structural steel support work erection, installation, testing government furnished cranes and davits for radar towers New York and New Jersey Special AAA sites; Schedule I, New York AAA Sites, Lido Beach and Lloyd Harbor; Schedule II, Niagara AAA Sites, Lake Ontario, Orchard Park; Schedule III, New Jersey AAA Sites, Mountain View, Morristown, Watchung and Leonardo, ENG-30-075-61-45. Approx. $4,000 per schedule. Plans deposit $5. CD 4/29/57.

† **Md., Andrews Air Force Base**—ROAD SURFACING—BA 11/30—U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C., bit. surf. roads, FY 61 M.C.P. ENG-49-080-61-22(22). $500,000. Plans deposit $10. CD 10/27.

† **Md., Andrews Air Force Base**—GLOBE COMMUNICATIONS ADDN.—BA About 12/6—U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C., globe communications bldg. addn. (Comlognet Center) ENG-49-080-61-25-(25). $400,000. Plans deposit $1.60. Whitman, Requardt & Assoc., 1304 St. Paul St., Baltimore, archts. CD 9/30.

BUILDINGS—BA

† **N. Y., Brookhaven**—LABORTAORY ADDN.—BA 11/28—H. McChesney, Jr., Administrative Officer, Alternating Gradient Synchrotron Proj., Bldg. 911, Brookhaven National Laboratory, Upton, L. I., 10,000 sq. ft. laboratory addn. to Service Bldg., Alternating Gradient Synchrotron Proj., Brookhaven National Laboratory. Stone & Webster Engineering Corp., 90 Broad St., New York, Zone 4, consult. engrs. CD 10/25.

▲ **N. Y., Deer Park**—JUNIOR HIGH SCHOOL—BA 12/14—Deer Park Union Free School Dist. No. 7, 1861 Deer Park Ave., Junior High School addn., alterations. $3,045,390. Extended date. F. P. Wiedersum, 65 Roosevelt Ave., Valley Stream, archt. CD 9/16.

BUILDINGS—SLC

D. C., Wash.—HOSPITAL RENOVATION— Columbia Hospital for Women, 25th and L Sts. N. W., soon let contract hospital renovation, $500,000. Plans deposit $75. Irwin S. Porter & Sons, Metropolitan Bank Bldg., archts., CD 10/4.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW YORK**—State Dpt. P. Wks., State Office Bldg., Albany,

rejected bids Sept. 21, grading, drainage 1.49 mi. b. conc. Type 2A, 1.14 mi., misc. work, 0.2 mi. City of Buffalo, Fuhrmann Blvd. Art. Hy. Contr. 1, Proj. U-750(21), Erie Co. LB $686,260. CD 9/22, under LB

▲ **NEW YORK**—State Dpt. P. Wks., State Office Bldg., Albany,

Peter Kiewit Sons Co., P.O. 224, Eastwood Sta., Syracuse 6, N. Y., CA $7,533,878, est. $9,762,000, 7.89 mi. 10.39 acc. mi. Interstate Rte. 502, Malta to Saratoga Springs, Int. Tr. Rte. 87, FISH. 60-8, Saratoga Co. Bids Sept. 21, awarded Nov. 3. CD 9/28, under LB.

Public Improvements, Inc., 356 Broadway, Brooklyn, N. Y., LB $235,000, (6 bidders), Contr. E-204, furnishing, installing fluorescent lighting for station platforms, Prospect Park, Parkside Ave., Church Ave., Beverly Rd., Cortelyou Rd. and Newkirk Ave. Station, Brighton Line, BMT Div., Brooklyn Boro, BROOKLYN, N. Y. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids Nov. 4. CD 10/17.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $53,000; other public works $88,000; Industrial buildings $110,000; other buildings $400,000. Also Foreign projects of $1,000,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED
New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK
Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.
OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
ENR Engineering News-Record
CD Construction Daily
For additional reports see Construction Daily.

Johnson Electric Corp., 206 E. 29 St., New York 16, N. Y., LB $255,800, (6 bidders), Contr. LGA-350.001, electrical installation for temporary control tower, La Guardia Airport, JACKSON HEIGHTS, N. Y. Port of New York Auth., 111 Eighth Ave., New York 11, N. Y. Bids Nov. 3. CD 10/12.

▲ **Warshaw Constr. Corp., Warshaw Bros., Inc. and Federal Constr. Corp.**, 101 Park Ave., New York 17, N. Y., CA $1,387,455, platform extensions to subway stations of New York City Transit Sys., I.R.T. Div., Bronx Boro, Contr. C-141, NEW YORK, N. Y. New York City Transit Auth., Rm. 1310, 370 Jay St., Brooklyn 1, N. Y. Bids Oct. 7, awarded Oct. 25. CD 10/11, under LB.

▲ **NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave., Trenton, Bids opened 11/3,

George M. Brewster & Son, Inc., 275 W. Fort Lee Rd., Bogota, N. J., LB $7,897,320, (4 bidders), constr. 2.4 mi. Bergen-Passaic Expressway approaches to George Washington Bridge, Rtes. 80 and 95 Teaneck Rd. to Rte. 4, Bergen Co. CD 10/14.

Ligon & Ligon, 3310 Ridgewood St., Baltimore 15, Md., LB $328,915, (6 bidders), Contr. 737-S, gravity sewer Crook Rd. to Essex Pumping Station, near Essex, TOWSON, MD. Baltimore Co., County Office Bldg., Towson 4, Md. Bids Oct. 27 CD 10/12.

BUILDINGS—LB & CA

▲ **Caristo Constr. Corp.**, 26 Court St., Brooklyn 1, N. Y., LB $1,630,000, (3 bidders), general contract PUBLIC SCHOOL 154, Alexander Ave. between E. 136 St. and Major Deegan Blvd., Bronx Boro, NEW YORK, N. Y. Deputy Supt. Schools, Bureau Constr., 4 Floor, 42-15 Crescent St., Long Island City 1, N. Y. Bids Nov. 3. CD 10/14.

▲ **404 East 72 St. Corp.**, 330 E. 80 St., New York 21, N. Y., Owner Builds, $2,800,000, two 20 story APARTMENTS, 404-10 East 72 St. and 414-20 East 72 St., NEW YORK, N. Y. Philip Birnbaum, 12 E. 48 St., New York 17, N. Y., archt. CD 10/8/59.

▲ **Vermilya-Brown Co., Inc.**, 100 E. 42 St., New York 17, N. Y., CA $2,747,000, Samuel J. Wood LIBRARY and RESEARCH BLDG., 1300 York Ave., NEW YORK, N. Y. Cornell University Medical College, 1300 York Ave., New York 13, N. Y. Bids Oct. 11. CD 10/17, under LB.

▲ **Yonkers Towers, Inc.**, 215 E. 204 St., New York, N. Y., Owner Builds, $1,375,000, 6 story Central Park Gardens APARTMENT, 1663 Central Park Ave., YONKERS, N. Y. Clarence Lillen, 1841 Broadway, New York 23, N. Y., archt.

▲ **Sovereign Constr. Co. Ltd.**, 1325 17 St., Fort Lee, N. J., LB $1,995,357, Proj. N.J.28-CH-21(SA) DINING HALL and GRADUATE RESIDENCE HALL, NEW BRUNSWICK, N. J. Rutgers University, 12 College Ave., New Brunswick, N. J. Bids Nov. 1. CD 9/20.

▲ **Wark & Co.**, 1920 Sansom St., Phila, Pa., CA approx. $1,500,000, COMMUNICATIONS SCHOOL, PHILA, PA. University of Pennsylvania, 3025 Walnut St., Phila, Pa. CD 1/21.

Emondale Bldg. Co., 5 North Guilford Ave., Baltimore 2, Md., Owner Builds $476,000, 34 brick veneer HOMES, Randall Ridge north of BALTIMORE, MD.

† **John K. Ruff, Inc.**, 3010 Ridgewood Ave., Baltimore 15, Md., CA $483,313, STUDENT BACHELOR OFFICERS QUARTERS, ENG-18-020-61-4, ABERDEEN PROVING GROUND, MD. U. S. Eng., 24 St. and Maryland Ave., Baltimore 18, Md. Bids Oct. 25. CD 10/18.

▲† **J. W. Bateson Co., Inc.**, P. O. Box 13307, Walnut Hill Station, Dallas, Tex., LB $11,989,000, (13 bidders), FEDERAL OFFICE BLDG. No. 8, Second, Third and D Sts., S. W. WASH., D. C. General Services Admin., 7 and D St. S. W. Wash. Bids Nov. 3. CD 9/22.

SOUTH

HEAVY CONSTRUCTION—BA

† **Louisiana**—BA 11/29—U. S. Eng., foot of Prytania St., New Orleans, Item W-116.3, levee restoration, Charenton-Intracoastal Canal Levee, WABPL, Wax Lake Outlet to Berwick, St. Mary Parish, CIVENG-16,047-61-66. $400,000. Plans deposit $1. CD 9/15/59.

† **Louisiana**—BA 11/30—U. S. Eng., foot of Prytania St., New Orleans, Item E-50.7, levee restoration, Ramah to Bayou Sorrel Lock, EABPL, Iberville Parish, CIVENG-16-047-61-67. $200,000. Plans deposit $1. CD 9/28/59.

▲† **Fla., Cocoa**—PRECISION TRAJECTORY MEASUREMENT SYSTEM—BA 12/6—U. S. Eng., P. O. Box 4970, Jacksonville, precision trajectory measurement system, $1,500,000. Plans deposit $10. CD 10/6.

BUILDINGS—BA

▲ **La., New Orleans**—OFFICE—BA 11/23—First National Life Insurance Co., 632 Baronne St., 12 story, 80,000 sq. ft., glass, limestone and granite office.

$2,000,000. Mathes, Bergman & Assn., 929 Howard Ave., archts. CD 8/9.

La., Pineville—NURSING HOME, etc.—BA 11/29—State Div. Administration, Capitol Bldg., Baton Rouge, 1 story, 33,000 sq. ft. rein.-con. frame, brick tile pediatric and adult nursing home, State Colony and Training School. Plans deposit $50. Barron, Heinberg & Brocato, 1015 Wisteria St., Alexandria, archts. CD 12/30/59.

† **Ky., Fort Knox**—SCHOOLS—BA 12/1—Housing & Home Finance Agency, 905 Hoffman Bldg., Louisville, Zone 2, (A) Pierce School addn. (B) Fort Knox High School addn. (C) elementary school. $800,000. Plans deposit $30. William G. Crawford, 4030 Alton Ave., Louisville, Zone 7, archt. CD 10/4.

Ala., Birmingham—OFFICE ADDN.—BA 12/6—Southern Research Institute, 2000 9th Ave., S., 5 story office addn. $400,000. Lawrence S. Whitten, Brown-Marx Bldg., archt.

▲† **Ky., Fort Knox**—HOUSING—BA 12/15—U. S. Eng., P .O. Box 59, Louisville, Zone 1, 196 buildings, 350-units Capehart Housing, ENG-15-029-61-4. $5,500,000. Plans deposit $10. Extended date. CD 10/13.

BUILDINGS—SLC

Ga., Atlanta—APARTMENT etc.—Carlton House Apartments, Inc., 35 Lombardy Way, NE, soon lets contract apartment, swimming pool, $750,000. Cunningham & Forehand, 572 Morosgo Dr., archts. CD 10/18.

▲ **Ky., Louisville** — MOTOR HOTEL — Leon Simm, 823 Fehr Ave., soon lets contract 2 story, brick, concrete block motor hotel. $1,000,000. William Bond, 3742 Lamar St., Memphis, Tenn., archt. Holiday Inns of America, 3736 Lamar St., Memphis, Tenn., lessee.

N. C., Durham—PLANT—Durham Coca Cola Bottling Co. c/o John D. Latimer, archt., Snow Bldg., soon let contract 38,000 sq. ft. bottling plant, $200,000. CD 5/31.

HEAVY CONSTRUCTION—LB & CA

C. M. Allen & Co., 3813 S. Boulevard, Charlotte, N. C., LB $208,240, telephone lines, Forsyth and Stokes Counties, NORTH CAROLINA, Oldtown Telephone System, P. O. Box 7657, Reynolds Station, Winston-Salem, N. C. Bids Nov. 1. CD 10/19.

BUILDINGS—LB & CA

▲ **NORTH CAROLINA**—State Hy. Comn., State Bldg., Raleigh,

N. C.—**Dickerson Inc.**, Monroe, N. C., CA $1,127,679, surf. 10.05 mi. Interstate Rte. 95 between St. Pauls and Hope Mill, Proj. 8.13963, I 95-1(8)31, F 299(9) Robeson and Cumberland Counties;

N. C.—**Thompson-Arthur Paving Co.**, 300 Benbow Rd. and **Lambeth Constr. Co.**, 1071 Retreat St., both of Greensboro, N. C., CA $721,427, grading, CABC, BST bit. conc. binder, surf. 11.185 mi. resurf. shoulder constr. on existing west bound lane, Interstate Rte. 85 between Greensboro and NC 61 Proj. 8.15418, I-85-3 (17)125, Guilford Co. Bids Oct. 25. CD 10/27, under LB.

† **Norfolk Dredging Co.**, P. O. Box 539, Norfolk Va., CA $645,590, maintenance dredging, Wilmington Harbor, ENG-31-075-61-4, NORTH CAROLINA, U. S. Eng., Box 1890, Wilmington N. C. Bids Oct. 20. CD 10/27, under LB.

† **W. H. Scott, Inc.**, P. O. Box 418, Franklin, Va., LB $237,000, est. $217,946, (7 bidders), replacing aircraft parking apron, Marine Corps Air Station, CHERRY POINT, N. C. Dpt. P. Wks., Fifth Naval Dist., U. S. Naval Base, Norfolk, Va. Bids Oct. 25. CD 9/30.

† **Southside Plumbing Co.**, Farmville, Va., LB $757,512, repairs and modifications to 450 Wherry Housing units, Tyndall Air Force Base, IFB 08-637-61-19, PANAMA CITY, FLA., Purchasing & Contracting Office, Tyndall Air Force Base, Panama City, Fal. Bids Oct. 28, CD 9/28.

▲ **Sullivan, Long & Hagerty**, 801 5th Ave. N., Birmingham, Ala., CA $1,686,072, water filtration plant, Contract 1, BIRMINGHAM, ALA. City, City Hall, Birmingham, Ala. Bids Oct. 26. CD 11/1.

R. H. Wright, Jr., P. O. Box 1580, Columbus, Ga., LB $325,299, est. $344,354, airmen's domintory, Gunter Air Force Base, ENG-01-076-61-7, MONTGOMERY, ALA. U. S. Eng., 2301 Grant St., Mobile, Ala. CD 10/12.

▲ **Boh Bros. Constr. Co.**, 2400 Cypress St., New Orleans, La., CA $1,766,149, Contr. 5908-A, sewerage collection sys. and force mains, BOGALUSA, LA. City Council, City Hall, Bogalusa, La. Bids Oct. 11, awarded Oct. 26. CD 10/19, under LB.

▲ **R. P. Farnsworth & Co., Inc.**, 1515 S. Salcedo, New Orleans, La., LB $1,529,714, addnl. work, Nashville Ave. Wharf, Req. ENG-4709, NEW ORLEANS, LA. Port of New Orleans, No. 2 Canal St., New Orleans, La. Bids Nov. 2. CD 10/11.

▲ **KENTUCKY and INDIANA**—Commonwealth of Kentucky, Dpt. Hys., Frankfort, Ky., Bids opened 11/4,

Ruby Constr. Co., 101 Sagg St., Madisonville, Ky., LB $2,338,870, (12 bidders), bridge, grade, drain, lighting 0.373 mi. Louisville-Lexington. Proj. I 64-2(15) 1, Jefferson Co. CD 10/14.

▲ **KENTUCKY**—Commonwealth of Kentucky, Dpt. Hys., Frankfort, Bids opened 11/4,

Ky.—**W. L. Harper & Co.**, 1073 Emerson St., Park Hills, Covington, Ky., LB $1,254,784, (15 bidders), c. conc. 4.045 mi. Covington-Lexington, I 75-7(10) 169, Boone Co.; LB $1,522,901, (15 bidders), c. conc. 5.41 mi. Covington-Lexington, Proj. I 75-7(15) 164, Boone, Grant and Kenton Counties. CD 10/14;

Ky.—**George M. Eady Co.**, 340 Byrne St., Louisville, Ky., LB $542,853, (6 bidders), high type surf. 2.89 mi. Paintsville-Prestonsburg, Proj. F 133(12), Johnson Co. CD 11/4;

Ky.—**McDade & McDade**, Mears St., Fulton, Ky., LB $89,979, (7 bidders), traffic bound surf. 5.901 mi. Cherry Rd., Proj. RS 20-584, Carlisle Co. CD 10/19.

▲ **KENTUCKY and OHIO**—Kentucky State Hy. Dpt., Frankfort, Ky., Bids opened 11/4,

Roy Ryan & Sons, 5416 Booneville, Evansville, Ind., and **Ruckmor & Hansen**, 3617 N. Clinton, Fort Wayne, Ind. LB $1,141,024, (11 bidders), bridge substructure Covington-Lenxington, Proj. I 75-8(14) 190, Kenton Co. CD 9/28.

W. L. Hailey & Co., Inc., 314 42 St. North, Nashville 9, Tenn., LB $285,289, (7 bidders), Contr. 12, Wolf Run Water Shed Area, gravity sewer lines, LEXINGTON, KY. City, City Hall, Lexington, Ky. Bids Nov. 1, CD 10/19,

Mather Constr. Co., Box 388, Jeffersonville, Ind., LB $127,663, (5 bidders), Contr. 13, Wolf Run Water Shed area, gravity sewer lines, (Lexington, Ky.),

Holloway & Sons Constr. Co., Middletown, Ky., LB $295,321, (6 bidders), Contr. II, Wolf Run Area, gravity sewer lines, (Lexington, Ky.).

BUILDINGS—LB & CA

Cowles Constr. Co., Inc., 1420 Prince St. Alexandria, Va. LB $504,645, (12) bidders), GYMNASIUM at Georgs Washington High School, ALEXANDRIA, VA. Alexandria Bd. Educ., City Hall, Alexandria, Va. Saunders & Assoc., 3636 King St., Alexandria, Va., archts. Bids Nov 2. CD 10/14.

Bluemont Knitting Mills, Galax, Va., Owner Builds. $250,000, outerwear MILL, GALAX, VA. CD 11/6.

DeWitt Davis, 1335 Greenwood Ave., Charlotte, N. C., CA Est. $525,000, 35 RESIDENCES, CHARLOTTE, N. C. Carson & Cromartie, 1228 Elizabeth Ave., Charlotte, N. C.

Security Homes, Inc., 411 N. Green St, Greensboro, N C. Owner Builds $423,500, 55 HOUSES, Potomac Dr. GREENSBORO, N. C.

Commodore Boat Works, New Bern, N. C., Owner Builds, $300,000, rebuilding PLANT, NEW BERN, N. C. CD 3/31.

▲ **William C. Vick**, 3114 Hillsboro St., Raleigh, N. C. LB $1,184,000, general contract Longview HIGH SCHOOL, RALEIGH, N. C. Bd. Educ., 228 New Bern Ave., Raleigh, N. C. Bids Nov. 1. CD 10/4.

Boyle Constr. Co., P. O. Box 471, Sumter, S. C., CA $300,000, 1 story, 200 x 226 ft., brick, steel WAREHOUSE, BETHUNE, S. C. The Kendall Co., P. O. Box 1828, Charlotte, N. C. CD 11/2, under LB.

C. Y. Thomason Co., P. O. Box 232, Greenwood, S. C., LB $859,200, 50,000 sq. ft. Bailey Memorial HOSPITAL, CLINTON, S. C. Clinton Hospital Dist., Clinton, S. C. Bids Nov. 2. CD 10/26.

Fiske-Carter Constr. Co., Pine St. Extension, Spartanburg, S. C., CA $258,743, MILL addn., alterations, LOCKHART, S. C. Deering-Milliken Service Corp., P. O. Box 1924, Spartanburg, S. C. Bids Oct. 28.

▲ **T. C. Brittain Co.**, P. O. Box B, Decatur, Ga., LB $1,345,295, ADMINSTRATIVE-ACTIVITIES BLDG., ATLANTA, GA. The Westminister Schools, 1424 W. Paces Ferry Rd., Atlanta, Ga. Bids Nov. 1. CD 9/9.

▲ **Realsite Development Corp.**, 18705 NW 42nd Place, Miami, Fla., Owner Builds, $1,000,000, 110 RESIDENCES, FORT LAUDERDALE, FLA.

Brice Building Co., 1021 2nd Ave. N., Birmingham, Ala., CA Est. $600,000, SHOPPING CENTER ADDN., BIRMINGHAM, ALA. East End Corp., 1921 1st Ave. N., Birmingham, Ala.

Botter & Dutton, 510 Conception St., Mobile, Ala., CA Est. $450,000, CHURCH, DAPHNE, ALA. Malbis Memorial Church, Malbis plantation, Daphne, Ala. CD 11/2, under LB.

Berg & Diehl, 2100 Government St., Mobile, Ala., Owner Builds, $420,000, 28 RESIDENCES, MOBILE, ALA.

Perrilliat-Rickey Co., Box 13128, New Orleans, La., LB $696,400, (4 bidders), combined bid, 2 story, 25,000 sq. ft. rein.-con. frame, brick, steel CLASSROOM, 1 story brick REFECTORY and site imprvs., LACOMBE, LA. Holy Redeemer College, Bayou Gardens, Lacombe, La. Bids Oct. 18. CD 10/6.

▲ **Horace B. Rickey, Inc.**, Box 520, Baton Rouge, La., LB $1,211,337 Northside HIGH SCHOOL, LAFAYETTE, LA. Lafayette Parish School Bd., Lafayette, La. Bids Oct. 27. CD 10/11.

Bartley Inc., 433 Gravier St., New Orleans, La. CA $400,000, 2 story 41,000 sq. ft. rein.-con., steel frame, brick and tile GYMNASIUM and STUDENT CENTER NEW ORLEANS, LA. DeLaSalle High School, 5300 St. Charles Ave., New Orleans, La. Bids Oct. 18. CD 9/28.

Garst-Receveur Co., 325 W. Ormsley, Louisville, Ky., CA Est. $400,000, OLYMPIC CENTER, bowling lanes, ice rink, etc., MIDDLETOWN, KY. Olympic Center, Inc., 325 W. Ormsley, Louisville, Ky. Lloyd Schleicher, 2027 S. 2 St., Louisville, Ky., archt. Kaestner-Lynch, 190 Colony Way, Louisville, Ky., engrs.

General Builders Corp., 906 2nd Ave. S., Nashville, Tenn., CA $925,000, Central HIGH SCHOOL, COLUMBIA, TENN., Maury Co. Bd. Educ., Columbia, Tenn. Clemmons & Gingles, 1911 Division, Nashville, Tenn., archts. Bids Oct. 25, awarded Oct. 28. CD 11/2.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

Wis., Milwaukee—BA 11/22—City, City Hall, water main W. Howard Ave. $550,000. Plans deposit $10. CD 1/27.

BUILDINGS—BA

▲ **Wis., Tomahawk**—HOSPITAL—BA 11/23—Sisters of the Sorrowful Mother, hospital. $2,000,000. Plans deposit $50. Mark F. Pfaller Assocs., 7613 W. State St., Wauwatosa, archts. CD 6/23.

O., Stow—SCHOOL—BA 11/30—Bd. Educ., 1819 Graham Rd., Fishcreek School. $580,000. Plans deposit $20. W. F. Huff, 1050 N. Main St., Akron, Zone 10, archt. CD 9/28.

▲ **O., Columbus**—SCHOOL—BA 12/13—Bd. Educ., 270 E. State St., high school, Whetstone Park, Henderson Rds. $1,300,000. CD 8/5.

HEAVY CONSTRUCTION—LB & CA

Focht Bros., Inc., 416 Wentz St., Tiffin, O. CA $484,550, sewage treatment plant addn., BOWLING GREEN, O. City, City Hall, Bowling Green, O. Finkbeiner, Pettis & Strout, 2130 Madison Ave., Toledo, O., engrs. CD 7/14.

▲ **The Kalill Co.**, 4161 W. 150th St., Cleveland 35, O. LB $360,256, (1 bidder), Section A-Cedar-Richmond trunk sanitary sewer, South Euclid; LB $192,394, (7 bidders), Section E-Cedar-Richmond Trunk sanitary sewer, South Euclid, CLEVELAND, O. Bd. Comrs. Cuyahoga Co., 1219 Ontario St., Cleveland 13, O. Bids Oct. 26, CD 10/3;

Gerl Excavating Co., 23600 Lakeland Blvd., Cleveland 23, O., LB $135,478, (5 bidders), Section B-Cedar-Richmond Trunk sanitary sewer, South Euclid; LB $303,332, (4 bidders) Section D-Cedar-Richmond Trunk sanitary sewer (Cleveland, O.);

National Constr. Co., 23500 Lakeland Blvd., Cleveland 23. O., LB $428,434, (5 bidders), Section C-Cedar-Richmond trunk Sanitary sewer, South Euclid (Cleveland, O.).

Courtney Inc., Beaver, Pa., LB $313,404, est. $400,000, (12 bidders), Contract 3, East Interceptor Sewer, NORTH OLMSTED, O. City, City Hall, North Olmsted, O. Floyd G. Browne & Assocs., 125 W. Church St., Marion, O., engrs. Bids Oct. 27. CD 10/13.

▲ **INDIANA**—State Hy. Dpt., State House Annex, Indianapolis, Bids opened 11/1,

Ind.—**Moellering Constr. Co.**, Engle Rd., Fort Wayne, Ind., LB $206,708, cont. steel beam bridge, Contract 5128, Allen Co.; LB $285,707, rein.-con. girder and continuous steel beam bridge Contract 5129, Allen Co.;

Ind.—**G. H. Allen**, Vincennes, Ind., LB $288,851, cont. plate girder bridge, approach grading, Contract 5142, Lawrence Co.;

Ind.—**McMahan Constr. Co.**, Rochester, Ind., LB $245,763, cont. steel beam and rein.-con. girder bridges, Contract 4839, Marshall Co.;

Ind.—**J. C. O'Connor & Sons, Inc.**, 2104 Miner St., Fort Wayne, Ind., LB $738,494, rein.-con. girder and cont. steel beam bridge, Contract 5152, Lake Co.;

Ind.—**Rieth-Riley Constr. Co.**, 311 W. Madison St., Goshen, Ind., LB $201,495, twin structures, Contract 5058, Allen Co.;

Ind.—**Ruckman & Hansen, Inc.**, 5620 Industrial Rd., Fort Wayne, Ind., LB $143,040, rein.-con. girder, cont. steel beam bridge, Contract 5131, Allen Co.;

Ind.—**Smith & Johnson, Inc.**, 1799 Kentucky Ave., Indianapolis, Ind., LB $114,084, bridge, Contract 5107.

Ind.—**Traylor Bros., Inc.**, Upper Mt. Vernon Rd., Evansville, Ind., LB $386,701, rein.-con. girder, cont. steel beam bridge, Contract 5134, Vanderburg Co. CD 10/12.

Morrison Constr. Co., 1834 Summer St., Hammond, Ind LB $500,567, est. $900,000, 24- to 36-in. c.i. and concrete water pipes, HAMMOND, IND. Dpt. Water Works, 6505 Columbia Ave., Hammond, Ind. Bids Oct. 19. CD 8/3.

▲ **ILLINOIS**—Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldgs., Springfield,

Ill.—**General Paving Co.**, 30 E. John St., Champaign, Ill., CA $2,039,384, paving 4.9 mi., grade separation, Ill. 47 northeast of White Heath, Piatt Co.; CA $983,485, paving 3.71 mi. FA 17 east of Mattoon, Coles Co.;

Ill.—**E. T. Simonds**, Carbondale, Ill. and **J. D. Barter**, Harrisburg, Ill., CA $1,118,129, paving 1.62 mi. FAI 70 near Ill. Rte. 111, St. Clair Co.;

Ill.—**Howell Asphalt Co.**, 1020 N. 13th St., Mattoon, Ill., CA $836,455, paving 2.18 mi. FA 17 west of Charleston, Coles Co. Grand total $4,977,453. Bids Oct. 25, awarded Nov. 1. CD 10/28, under LB.

Standard Paving Co., 300 W. Washington St., Chicago 6, Ill., LB $225,332, No. 80.63-60-24, bit. resurf. various streets other than arterial, CHICAGO, ILL. Dpt. Purchases, City Hall, Chicago 2, Ill. Bids Oct. 21. CD 2/4/59.

WISCONSIN—State Hy. Comn., Madison,

LaCrosse Dredging Corp., 140 S. Dearborn St., Chicago 3, Ill., CA $817,428, Structure B 40-142, grading and track laying, Contract 1, West Greenfield Ave. (C. & N. W. Rly. underpass) and West Expressway (C. & N. W. Rly. grade change) Milwaukee Co. Bids Sept. 13. CD 9/20, under LB.

W. J. Lazynski, Inc., 4445 N. 124th St., Milwaukee, Wis., LB $102,726, (8 bidders), Lincoln Creek imprvs., MILWAUKEE, WIS. Sewerage Comn., City of Milwaukee, P. O Box 2079, Milwaukee, Wis. Bids Nov. 1. CD 10/17.

Milwaukee Underground Constr. Co., 6227 W. Greenfield Ave., Milwaukee, Wis., LB $281,426 (5 bidders),

main sewer, easement south of W. Fairy Chasm, Brown Deer (Milwaukee, Wis.).

▲ **MICHIGAN** — State Hy. Dpt., 732 Mason Bldg., Lansing, Bids opened 11/2.

Mich.—**Smith Brothers & Klett Cons. Co.**, Hartford, Mich., LB **$619,209**, reconstr., grading, drainage structures and surf. 7.4 mi. M-140 north from M-62 to Napier Ave., Berrien Co.;

Mich.—**Hodgkiss & Douma**, Petoskey, Mich., LB **$415,136**, relocation US 31 in Petoskey to imprv. trunkline's alignment as it passes through the city, Emmet Co.;

Mich.—**Hicks Co.**, Alma, Mich., LB **$294,630**, wid'n. and surf. 7.5 mi. M-20 from US 27 in Mt. Pleasant easterly to Isabella-Midland county line, Isabella Co.;

Mich.—**Kutchins Co.**, 1516 Moores River Dr., Lansing, Mich., LB **$90,530**, ½ mi. wid'n., surf. US-23 from Tuomy Rd. southeasterly to Stadium Blvd. in Ann Arbor, Washtenaw Co.;

Mich.—**Greenfield Constr. Co.**, 15601 W. McNichols, Corner Winthrop, Detroit, Mich., LB **$332,585**, water sys. alterations 1 mi. Whitcomb Ave. from Keeler to Santa Maria in Detroit, Wayne Co. CD 10/28.

▲ **MICHIGAN** — State Hy. Dpt., 732 Mason Bldg., Lansing, Bids opened 11/2,

Mich.—**L. W. Edison**, 5271 Plainfield Ave., Grand Rapids, Mich., LB **$1,553,367**, 1 mi. freeway and two structures from 6 St. north to Richmond St., Grand Rapids, Kent Co.; LB **$1,941,406**, 7/10 mi. freeway and two structures from Richmond St. north to point about 2/10 mi. north of Nason St., Kent Co. CD 10/18, under Streets and Roads.

Mich.—**E. C. Nolan & Jarvick Cons. Co.**, Centerline, Mich., LB **$236,687**, twin bridge to carry US 27 freeway over Chesapeake and Ohio RR tracks 1 mi. northeast of Mt. Pleasant, Isabella Co. CD 10/28.

▲ **F. H. Martin Constr. Co.**, 3614 East Milwaukee Ave., Detroit 11, Mich., CA **$1,327,000**, Livonia Drain No. 2, 7,550 lin. ft. 16 ft. 4 in. x 12 ft. 0 in. monolithic concrete arch., etc. city of Livonia, Wayne Co., DETROIT, MICH. Wayne County Drain Comn., 3523 Cadillac Tower, Detroit 26, Mich. Bids Oct. 20, awarded Nov. 3. CD 10/25, under LB.

BUILDINGS—LB & CA

Dues Building Systems, 445 Findlay Ave., Dayton, O. CA **$500,000**, 4 unit SHOPPING CENTER, BOWLING ALLEY, 357 car parking LAWRENCEBURG, IND. H. Siebel, Lawrenceburg, Ind. J. E. Holland, 437 W. Cedar St., Akron, O., archt. John Kenneth Berry, 56 Cuyahoga Falls Ave., Akron, O., electrical engr. Atlantic & Pacific Tea Co., Indianapolis, Ind., lessee.

Larson-Danielson Constr. Co., Inc., 302 Tyler St., La Porte, Ind., LB **$427,860**, general contract Proj. Ind-19-1; 64 unit HOUSING, MAINTENANCE BLDG., MICHIGAN CITY, IND. City Housing Auth., Court House, Michigan City, Ind. Bids Sept. 20. CD 9/14.

Clearing Industrial Dist., 6455 S. Central Ave., Chicago, Ill., CA **$500,000**, 65,000 sq. ft. aluminum bldg. products FACTORY, FRANKLIN PARK, ILL. U. S. Aluminum Siding Corp., 10551 Anderson Ave., Franklin Park, Ill.

Galesburg Constr. Co., Seminary and Brooks Sts., Galesburg, Ill., LB **$700,000**, 5 story womens residence hall, GALESBURG, ILL. Knox College, Galesburg, Ill. Perkins & Will, 309 W. Jackson Blvd., Chicago 6, Ill., archts. CD 1/9/52.

C. H. Langman & Son, 1811 12th St., Rockford, Ill., CA **$596,291**, general contract ELEMENTARY SCHOOL, Irving School site, ROCK ISLAND, ILL. Rock Island Public Schools, 541 21st St., Rock Island, Ill. Bids Oct. 11. CD 11/3, under LB.

W. A. Sheets & Son, Inc., 1057 Osage, Fort Wayne, Ind., CA Est. **$300,000**, 1 story, 180x180 ft. air-conditioned EGG GRADING PLANT, Jay St. and Darling Dr., COLDWATER, MICH. Kroger Co., 1014 Vine St., Cincinnati, O. Awarded Oct. 27

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

† **Neb., Fort Crook**—DINING HALL ADDN.—BA 11/29—U. S. Eng., 215 N. 17 St., Omaha, Zone 2, 4,400 sq. ft. dining hall addn., Offutt Air Force Base, ENG-25-066-61-60, $200,000. Plans deposit $2.90. CD 9/29.

† **Ark., Blytheville**—AIRCRAFT WASHRACK—BA About 12/8—U. S. Eng., P. O. Box 867, Little Rock, aircraft washrack, Item No. 11-001(116-672), Blytheville Air Force Base, ENG-03-050-61-22, Approx. $200,000, CD 10/5.

† **S. D., Rapid City**—RUNWAY—BA 12/8—U. S. Eng., 1709 Jackson El, Omaha, Neb., constr. runway access taxiway (RPMT), Ellsworth Air Force Base, ENG-25-066-61-75. $300,000. CD 7/27.

N. D., Fargo—BA 12/13—City, City Hall, primary sedimentation basins, trickling filter, final settling tank, sewage pump station, sewage plant. Plans deposit $60. Black & Veatch, consult. engrs., 1500 Meadow Lake Parkway, P. O. Box 8405, Kansas City 14, Mo., engrs.

† **Okla., Altus**—BUILDING REPAIR—BA 12/13—U. S. Eng., Box 61, Tulsa, Zone 1, repair and remodel twelve existing buildings, Altus Air Force Base, ENG-34-066-61-26, $300,000. CD 9/9/58.

† **Mont., Great Falls**—RADAR TOWER—BA 12/14—U. S. Eng., 1519 S. Alaskan Way, Seattle 4, Wash, 85 ft. steel frame radar tower on rein.-con. fdns., 63 x 63 ft. with gas-fired steam boiler htg. sys. and chilled water air. conditioned sys., Malmstrom Air Force Station. ENG-45-108-61-63. $900,000, Plans deposit $4.30. CD 7/5.

† **N. M., Albuquerque**—ELECTRICAL POWER—BA About 12/15—U. S. Eng., Box 1538, electrical power for range instrumentation, White Sands Missile Range,

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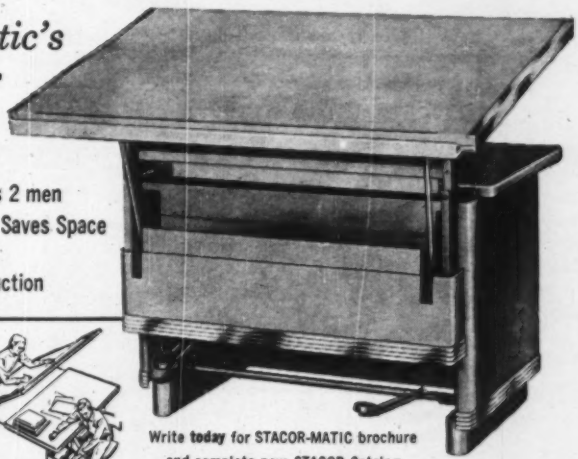

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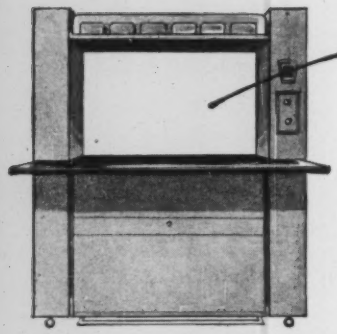
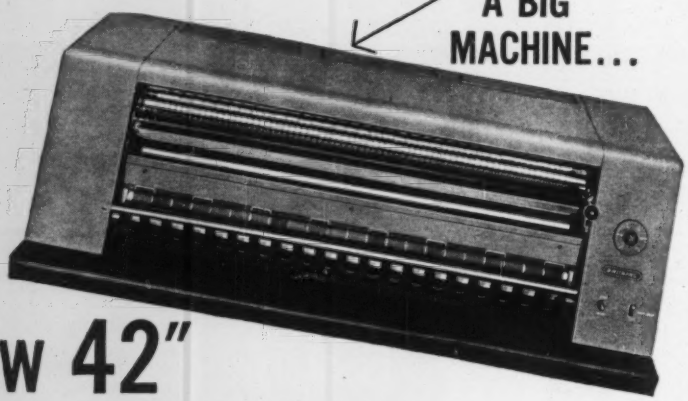


TAKES THE HEART RIGHT OUT OF A BIG MACHINE...



NEW 42" TABLE MODEL WHITEPRINTER!

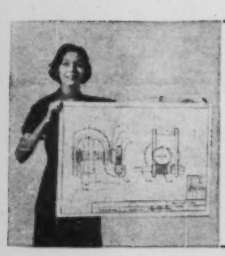
Bruning's new table-size Copyflex Model 320 gives you big machine capacity and performance at a price that puts many a big machine to shame! It's the perfect whiteprinter for firms and departments with *big* tracings—but with *small* reproduction budgets, cramped machine space, or both.

The amazing Model 320 gives you practically everything important you'd look for in a big machine . . . 42" printing width . . . mechanical speed up to 25 fpm . . . *complete* development of all types of materials at single pass through the machine at any machine speed . . . simple, one-knob speed control. Add to those the exclusive Copyflex advantages: fume-free operation, no vents, no plumbing. And, finally, to win the hearts of all, the 320 produces sharp, black-on-white prints at the low cost of only 1¼ cents per square foot!

Whether it's your first whiteprinter or an auxiliary whiteprinter, you just can't afford not to investigate the low-cost, high-output Model 320.

BRUNING Copyflex®

Low-Cost Diazo Reproduction at Its Best!



Charles Bruning Company, Inc. Dept. 11-U
1800 Central Rd., Mt. Prospect, Illinois
Offices in Principal U. S. Cities
In Canada: 103 Church St., Toronto 1, Ont.

Please send me more information on your new Copyflex Model 320.

Name_____ Title_____

Company_____

Address_____

City_____ County_____ State_____

ENG-25-066-61-60, $200,000. Plans deposit $2.90. CD 9/29.

† **Kansas**—BA 12/15—U. S. Eng., P. O. Box 621, Tulsa, Okla., access road at John Redmond Dam, Burlington, Coffey Co. ENG-34-066-61-23. $500,000. CD 9/20.

BUILDINGS—BA

Colo., Denver—HOSPITAL—BA 11/22—National Jewish Hospital, E. Colfax and Colo. Blvd., remodeling and addition to B'nai B'Rith Hospital at Colorado Blvd. and Colfax Ave. $500,000. Eugene D. Sternberg, 1930 Sherman St., archt., CD 10/3.

Mo., Hilisboro—SCHOOL—BA 11/22—School Dist. R-3 of Jefferson Co., Bd. Educ., Hillsboro, 2 story, 154 x 67 ft., brick, concrete, etc. elementary school. $400,000. Pearce & Pearce, Inc., 721 Olive St., St. Louis, Zone 1, archt.

▲ **Minn., South St. Paul**—HOSPITAL—BA 11/23—Daughters of the Divine Redeemer, 1045 Douglas Rd., 6 story, 250-bed brick, stone memorial hospital, Thompson Ave. and 19 St. $3,000,000. S. C. Smiley & Assoc., 1750 Hennepin Ave., Minneapolis, archts. CD 6/1/59.

Tex., Austin—COMPUTER CENTER—BA 11/29—University of Texas, Board Regents, Main Admin. Bld., 1 story, 16,000 sq. ft., rein.-con fdn. and frame, limestone exterior, computer center, $400,000. Fehr & Granger, 403 E. 15th St., archts. Herman Blum, 1111 Neches St., and V. Clark Craig, 403 E. 15th St., engrs. CD 10/10/52.

▲ **Minn., Robbinsdale**—SCHOOLS—BA 11/30—Bd. Educ. Independent School Dist. No. 281, High School Bldg., Robbinsdale, Junior High School, N. 55 St. and Zealand Ave., $2,000,000; Meadow Lake Elementary School, N. 62 St. and Zealand Ave. $600,000. Plans deposit $50. Bisseli, Belair & Green, 1111 Nicollet Ave., Minneapolis, archts. Orr-Schelen, Inc., 1104 Currie Ave., Minneapolis, engr. CD 10/26.

▲ **Tex., San Antonio**—HOUSING—BA 11/30—Contracting Office, School of Aviation, Brooks Air Force Base, 170 Capehart Housing Units, Inv. No. 41-609-61-50. $2,200,000. Noonan, Krocker & Rogers, 2002 N. St. Marys St., archts. CD 4/19.

▲ **Okla., Oklahoma City**—OFFICES—BA 12/1—State Capitol Imprvt. Authority, Capitol, Zone 5, two offices, Lincoln St., north of the Capitol, over $5,000,000. Hudgins Thompson & Ball, Classen Terrace Bldg., and Bailey Bozalis, Dickinson & Roloff, 3300 Liberty Bank Bldg., archts. CD 10/26.

† **Kan., Lawrence**—SCHOOL, etc.—BA 12/8—Bureau Indian Affairs, P. O. Box 8327, Albuquerque, N. M., school and dormitories, Haskell School facilities, Haskell Institute.

Colo., Denver—SYNAGOGUE, etc.—BA 12/13—Micah Congregation, c/o Eugene L. Sternberg & Assocs., archts., 1930 Sherman, 1½ story, synagogue and educational building, $500,000. CD 7/18.

HEAVY CONSTRUCTION—LB & CA

▲† **J. A. Jones Constr. Co.**, 209 W 4th St., Charlotte, N. C., & **T. L. James & Co. Inc.**, Airline Hy., Kenner, La., LB **$15,913,037**, (13 bidders), Beaver Reservoir, White River, CIVENG-03-050-61-13, ARKANSAS, U. S. Eng., P. O. Box 867, Little Rock, Ark. Bids Nov. 3, CD 9/7.

† **Pioneer Electric Ltd.**, 1 Rockwood St., Fort Garry, Man., Canada, LB **$246,170**, Missouri River Basin Proj., Schedule No. 1, two 75,000/100,000/125,000 kva autotransformers for Stage 04 addns. to Sioux City substation, Grand Forks, Woodbury Co., NORTH DAKOTA, Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo; Bids Oct. 27, CD 9/23.

Westinghouse Electric Corp., 55 W. 5th Ave., Denver, Colo., LB **$107,330**, Missouri River Basin Proj., Schedule 2, one 45,000/60,000/75,000 kva autotransformer with lightning arresters for Stage addns. to Sioux City substation, Spec. DS 5402 (North Dakota).

SOUTH DAKOTA—State Dpt. Hy., Pierre,

S. D.—**Graves Constr. Co., Inc.**, Melvin, Iowa, CA **$155,493**, structures, on I 29 from ½ mi. N. of Junction City, North, Group No. 1, I 29-1(13)27, Union Co.; CA **$175,926**, structures on I 29 from ½ mi. N. of Junction City north, I 29-1(13)27, Group II, Union Co.;

S. D.—**H. Estervig**, Box 1408, Huron, S. D., CA **$205,171**, structures over James River on SD 28, 1.998 mi. F 038-1, Spink Co., Grand Total $536,590. CD 9/28.

▲ **SOUTH DAKOTA**—State Dpt. Hy., Pierre,

S. D.—**Pasco Constr. Co.**, Box 388, Sioux Falls, S. D., CA **$495,745**, grading, subbase 12.556 mi. SD 47 from Burke South, S 1441, Gregory Co.; CA **$859,706**, grading, subbase, 9.879 mi. I 29 from ½ mi. No. of Junction City north, I 29-1(13)27, Union Co.;

S. D.—**Tennefos Constr. Co., Inc.**, 2504 Fifth Ave., P. O. Box 1363, Fargo, N. D., CA **$474,155**, grading surf., 9.016 mi. SD 37 from SD 10 south F 047-7(4), Brown Co.;

S. D.—**Myrl Clar**, Box 42, Yankton, West., SD CA **$255,130**, Base course and bit. surf., SD 50 Wagner, S 7561(S. W.) AND S 7561(3), 11.475 mi., Charles Mix Co.;

S. D.—**R. S. Krage Co.**, 415 Bluff St., P. O. Box 805, Sioux Falls, Iowa, CA **$198,611**, grading, subbase, 8.053 mi., SD 44 from US 81 east, S 3571(1), Hutchinson and Turner Counties, Grand Total $2,283,347. Bids Nov. 3. CD 9/28.

† **State Constr. Co., Inc.**, 8822 SW 29th St., Midwest City, Okla., LB **$574,982**, est. $600,000, Comlognet Facility addn., Tinker Air Force Base, ENG-34-066-61-16, OKLAHOMA CITY, OKLA. U. S. Eng., Box 61, Tulsa, Okla. Bids Oct. 27. CD 10/16.

▲ **TEXAS**—State Hy. Comn., Austin,

F. M. Reeves & Sons, and T. M. Brown & Sons, 218 W. Little York, Houston, Tex., CA **$1,676,870**, grading,

(Continued on page 134)

NEW FROM CHEVRO

!!! WING-DING OF A TRUCK

OLET

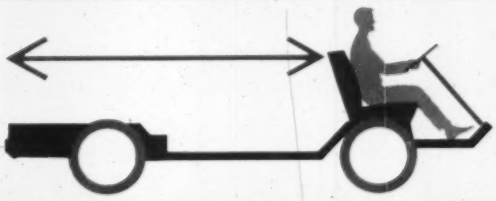
★★★★★★★

K IDEA!!!

DRIVER'S UP FRONT

★★★★★★★★★★★★★★★

!! ENGINE'S IN THE REAR !!



ALL THE REST IS LOAD SPACE

What you see here is not merely a new truck model . . . *it's a new kind of truck.* An efficient truck design that gives you many more feet of load space than a conventional half-tonner because of a unique build that eliminates the hood. A design that puts out new working efficiency by putting the engine and transmission in the rear. (Of a Corvair 95's short 15-foot length, *nearly 9 feet is for cargo!*) Here's a truck weight that's distributed *evenly*, front and rear, to enable a Corvair 95 to carry up to 1,900 lbs. of payload with a trim 4,600-lb. GVW. Here's a short 95-inch wheelbase that pays off in easy, nimble maneuvering.

Dollar-saving performance starts with the engine—an air-cooled space-saving "pancake" 6 that never needs antifreeze or radiator repairs . . . and never stops whittling down fuel costs! Ideally suited for trouble-free truck duty, also, is the tough chassis build of Corvair 95, which includes frame and body designed as a rugged one-piece unit to withstand slam-bang runs. And there's *4-wheel independent suspension* (first time in a U.S. truck!) to add stability to truck performance and to take the roughness out of road surfaces.

The list of Corvair 95 design advantages is as long as your arm. There's *low* loading height, for example: load space so accessible that the truck practically loads and unloads itself! And there's exceptional driver comfort in the roomy cab. (With no hood projecting out in front, visibility has never been better.)

It's a wing-ding of a truck idea—a big Chevy "first," available in pickup and panel body versions. Look 'em over right here.

★ NEW LOADSIDE PICKUP

More load space than conventional half-tonners! • Full-width pickup box gives 80 cubic feet of load space! • Big 1,900-lb. cargoes, with trim 4,600-lb. GVW • Deep-well cargo area midship for tall, bulky loads • Low 14″ floor height saves work when loading • Optional (extra cost) flat floor gives 39 sq. ft. of flat loading area, plus cargo-stowing area underneath! • Sturdy integral body-frame design • Independent 4-wheel suspension • Short wheelbase and turning radius for easy handling and parking

★★★

NEW CORVAIR 95 LOADSIDE

NEW CORVAN

NEW CORVAIR 95 RAMPSIDE

NEW !!!! CHEVROLET CORVAIR 95 TRUCKS

They're the *newest* load-pullers since horses went out of style! The most efficiently designed trucks you've ever seen, loaded with scores of new advantages, such as these:

ECONOMY OF AN AIR-COOLED REAR ENGINE—the aluminum Turbo-Air 6. No antifreeze to buy; no radiator repairs to worry about. Fast warm-up keeps fuel costs down. And when you need a burst of speed, this one really skedaddles!

EASY TRACTION WHEN RUNNING EMPTY. Snowy or mud-clogged routes pose no problem for Corvair 95. This new design puts engine weight in the rear, for deep-biting traction that gets you through.

UNIPACK FOR FAST, EASY SERVICING. Engine, transmission and rear axle are combined in one strong, efficient unit. A space-saving package that can be removed in minutes to speed up service, reduce downtime. Convenient access panels make routine maintenance easier.

MORE LOAD SPACE, LESS ROAD SPACE. With nearly 2 feet less overall length, a Corvair 95 eases into tight spots like no conventional half-tonner can. But Corvair 95's carry bigger cargoes—nearly two-thirds of the length is for load space!

RUGGED UNITIZED BODY-FRAME CONSTRUCTION. Tough, integral floor-frame assembly reduces truck weight, helps provide low loading height. Welded all-steel front, side and roof panels add more strength. Corvair 95's are built to last!

LESS TRUCK WEIGHT ALLOWS MORE CARGO WEIGHT. Corvair 95's weigh up to 1,200 lbs. less than corresponding conventional models. Yet they'll carry 1,900 lbs. of cargo!

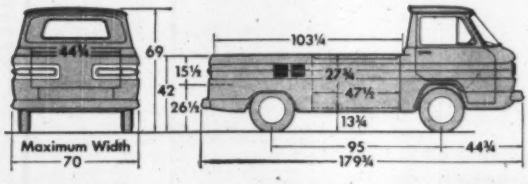
BALANCED 50-50 WEIGHT DISTRIBUTION. Load space located midship results in big cargo-carrying capacity. Husky 2,500-lb.-capacity front and rear suspensions carry nearly equal loads to reduce strain on chassis and tires.

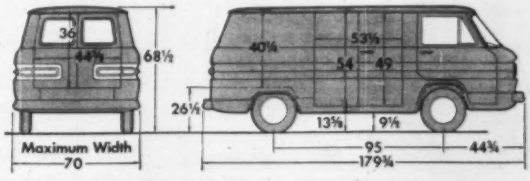
SMOOTH INDEPENDENT 4-WHEEL SUSPENSION. Smooth sailing on bumpy streets results from balanced friction-free coil springs at all four wheels. Independent wheel action adds to handling ease. A sturdy suspension that withstands any duty!

SHORT WHEELBASE MANEUVERABILITY. Corvair 95's are easiest to get around in. Turning radius (under 20 feet) is less than that of ordinary trucks. That means easier maneuvering and parking, faster hauls in congested areas.

EASIEST TO LOAD. Exclusive Rampside pickup side gate drops down to make cargo loading a snap. Big Corvan side doors open so wide you can load 4′ x 4′ crates with ease. And Corvair 95 rear loading heights, low as those of conventional models, will save you work every time out.

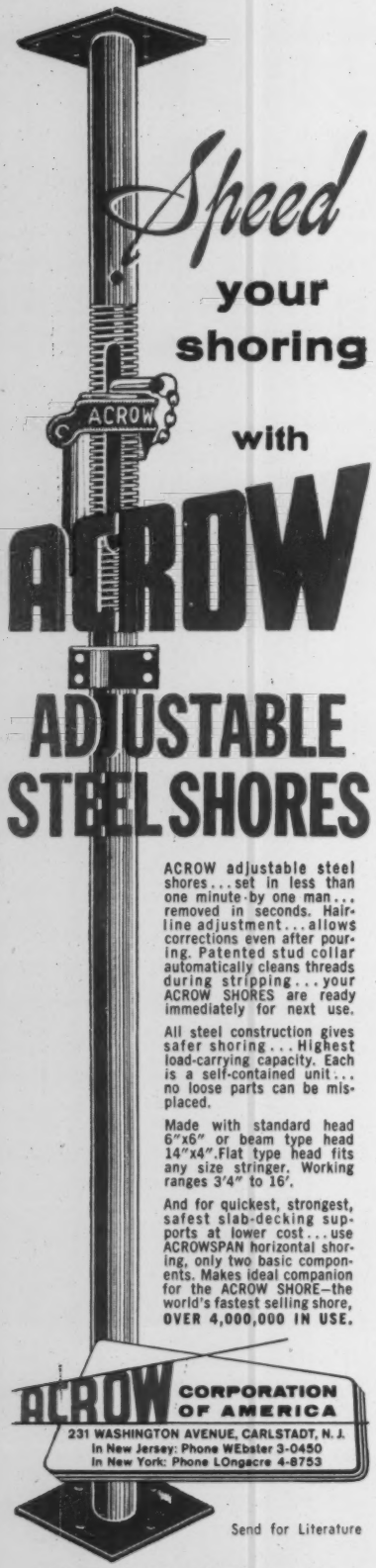
And that's not the whole story, by any means. There's rugged *truck-built* construction that shows up best when the going's worst . . . snappy styling with high, wide side panels that allow plenty of space for advertising . . . and much, much more. Visit your nearby Chevrolet dealer soon and get all the details. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.





1961 CHEVROLET STURDI-BILT TRUCKS

CHEVROLET



ACROW adjustable steel shores...set in less than one minute by one man... removed in seconds. Hair-line adjustment...allows corrections even after pouring. Patented stud collar automatically cleans threads during stripping...your ACROW SHORES are ready immediately for next use.

All steel construction gives safer shoring...Highest load-carrying capacity. Each is a self-contained unit... no loose parts can be misplaced.

Made with standard head 6"x6" or beam type head 14"x4".Flat type head fits any size stringer. Working ranges 3'4" to 16'.

And for quickest, strongest, safest slab-decking supports at lower cost...use ACROWSPAN horizontal shoring, only two basic components. Makes ideal companion for the ACROW SHORE—the world's fastest selling shore, OVER 4,000,000 IN USE.

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(Continued from page 128)

and strs. 16.916 mi. Hy. IH 10' Proj. I-10-1(43) 62, Hudspeth Co. CD 10/24.

A. J. McKenzie Constr. Co., 435 E. Mitchell St., San Antonio, Tex., LB **$301,967**, est. $496,787, (9 bidders), excavating Woodlawn Lake, SAN ANTONIO, TEX. City, City Hall, San Antonio, Tex. Bids Nov. 1. CD 10/13.

† **MONTANA**—Bureau Public Rds., Morgan Bldg., Portland, Ore.,

Crick & Sons & Billings Constr. Co., Babb, Mont., CA **$693,543**, construct 10.9 mi. Chief Mountain Rd. from U. S. Highway 89 to Canadian border, in Glacier National Park, Glacier Co. CD 10/11.

BUILDINGS—LB & CA

G. I. Johnson & Son, 848 W. 79 St., Minneapolis, Minn., LB **$235,248**, (3 bidders), CHEMICAL STORAGE WAREHOUSE addn., MINNEAPOLIS, MINN. Regents of University of Minnesota, 404 Admin. Bldg., Minneapolis 14, Minn. Bids Nov. 1, CD 10/12.

▲ **Arthur G. McKee & Co.**, 2300 Chester Ave., Cleveland, O., CA Est. **$2,000,000-$3,000,000**, UREA PLANT, JOPLIN, MO. Solar Nitrogen Chemicals, Inc. (Atlas Powder Co., New Murphy Rd. and Concord Park, Wilmington, Del., and Standard Oil Co. of Ohio, Midland Bldg., Cleveland, O.).

▲ **Rust Engineering Co.**, 2316 4 Ave. N., Birmingham, Ala., CA Est. **$2,500,000**, 2,100,000 bu. rein.-con. GRAIN ELEVATOR, KANSAS CITY NORTH, MO. Missouri Farmers Assn., Bd. Trade Bldg., Kansas City, Mo. Horner & Wyatt, Dwight Bldg., Kansas City, Mo., engrs. CD 1/29/59.

Herbert L. Bacht, Montgomery City, Mo. CA **$805,000**, Est. $750,000, JUNIOR HIGH SCHOOL BLDG., MONTGOMERY CITY, MO. Montgomery Co. School Dist. R-11, Montgomery City, Mo. Bids Oct. 25. CD 10/12.

▲ **Dickman-Pickens-Bond Constr. Co.**, Gazette Bldg., Little Rock, Ark., LB **$2,475,246**, FACTORY, OSCEOLA, ARK. City, City Hall, Osceola, Ark. Osborn Engineering Co., 7016 Euclid Ave., Cleveland, O., engr. American Greeting Card Co., Cleveland, O., lessee. Bids Nov. 3, CD 11/4.

Texas State Prison Bd., Capitol Bldg., Austin, Tex., Owner Builds, **$500,000**, 2 PRISON BLDGS., Ramsey Farm, ANGLETON, TEX. CD 6/7/55.

Yates Constr. Co., 2011 Cedar Springs, Dallas, Tex., CA **$865,870**, Herschel Forester ATHLETIC PLANT, Military Drive, DALLAS, TEX. Dallas Ind. School Dist., 3700 Ross Ave., Dallas, Tex.. Fred Buford & Associates, 500 Interurban Bldg., Dallas, Tex., archts. Wm. L. Cobb, Interurban Bldg., Dallas, Tex., engr. Bids Oct. 25. CD 11/1, under LB.

▲ **M. P. Moore, Contractor**, 7050 Sharpcrest St., Houston, Tex., Owner Builds, **$1,800,000**, 90 DWELLINGS, brick, Sharpstown, Sect. 5, HOUSTON, TEX.

▲ **James Wilkerson, Builder**, 7030 Sharpcrest St., Houston, Tex., Owner Biulds, **$1,780,000**, 89 brick, frame DWELLINGS, Sharpstown Area HOUSTON, TEX.

Wichita Apartments, Inc., Tom Hill & Lary Moore, Wichita Falls, Tex., Owner Builds, **$675,000**, 8 APARTMENTS, Norwood Sikes addn., WICHITA FALLS, TEX.

Gens Constr. Co., 2608 4th Ave., Great Falls, Mont., CA **$934,599**, HIGH SCHOOL, SHELBY, MONT. Shelby High School Dist., Shelby, Mont. CD 8/1, under LB.

▲ **Hensel Phelps Constr. Co.**, 420 6th Ave., Greeley, Colo., CA **$1,307,000**, 4 story, 195 x 55 ft., and 71 x 45 ft. HOSPITAL ADDN., GREELEY, COLO. Weld Co. General Hospital, 16th and 17th Avenues, Greeley, Colo. Bids Oct 28, CD 11/1, under LB.

† **Swanson & Youngdale Constr. Co.**, 737 France Ave. No., Minneapolis 22, Minn., LB **$532,977**, HOUSING remodeling, Phase B Inv. No. 291-61-1, LOS ALAMOS, N. M. U. S. Atomic Energy Comn., Contracts & Procurement Station, Los Alamos, N. M. Bids Oct. 18. CD 9/15.

FAR WEST

HEAVY CONSTRUCTION—BA

▲ **Calif., San Diego**—BA 11/30—City Council, Rm. 356, Civic Center, 1600 Pacific Hy., Zone 1, sewers, pump station, drainage structure, Mira Mesa. $1,489,674. Extended date. CD 10/17.

▲ **Calif., Los Angeles**—BA 12/2—Los Angeles County Flood Control Dist., 2250 Alcazar St., Proj. 414, Buena Vista Canyon Storm Drain, Monrovia Duarte, $109,200; Proj. 569, Redondo Beach Storm Drain, Unit 1, Lines A, E and F, Redondo Beach, $967,200. Plans deposit $2.60 each. CD 11/10/58.

BUILDINGS—BA

Wash., Enumclaw—SCHOOL—BA 11/17—School Dist. 216, 2222 Porter St., 50,000 sq. ft. rein.-con., frame high school, $600,000. Plans deposit $25. Lea, Pearson & Richards, 240 Stadium Way, Tacoma, archts. CD 11/20/59.

HEAVY CONSTRUCTION—LB & CA

▲ **UTAH**—State Rd. Comn., State Capitol, Salt Lake City, Zone 14, Bids opened 11/1,

V. C. Mendenhall Co., 7800 E. Charleston St., Las Vegas, Nev., LB **$1,184,419**, est. $1,362,000, 5.3 mi. Interstate Hy. 15 and 3 concrete T-beam structures Anderson Jct. to Leeds, Washington Co. CD 10/13.

Tiago Constr. Co., 3399 S. 2 West, Salt Lake City 15, Utah, LB **$328,868**, (9 bidders), trunk lines for south section of district, BOUNTIFUL, UTAH. South Davis Co. Sewer Imprvt. Dist., 2022 So. Main, Bountiful, Utah. Bids Nov. 1. CD 10/14.

▲ **ARIZONA**—State Hy. Dpt., 206 S. 17th Ave., Phoenix,

Ariz.—Wells-Stewart Constr. Co., Box 4397, Annex Station, Las Vegas, Nev., CA **$1,317,576**, grading, select material, cement treated base, b. conc. includes furnishing, placing b. conc. on existing portion westbound roadway, furnishing, applying an emulsified asphalt seal coat on both roadways, construction two 4-span steel girder interchange structures, beginning about 38 mi. northeast of Holbrook on U. S. Route 66, approx. 5.4 mi. toward Sanders, Holbrook-Lupton Hy. (Item No. 338), Apache Co.; CA **$1,062,297**, grading, select material, cement treated base, b. conc. incl. furnishing, placing b. conc. on existing west bound roadway, furnishing, applying an emulsified asphalt seal coat on both roadways, construction one 4-span steel girder interchange structure, one 5-span rein.-con. continuous slab bridge, beginning about 32 mi. northeast Holbrook on U. S. Route 66, extending northeasterly over U. S. 66 approx. 6.4 mi. toward Sanders, Holbrook-Lupton Hy., (Item No. 81) Apache Co.;

Ariz.—Givens Constr. Co., Box 13287, Phoenix, Ariz., CA **$513,242**, grading, select material, aggregate base, b. conc. an emulsified asphalt seal coat, beginning about 14½ mi. north of Prescott on U. S. Route 89, extending south over U. S. 89 approx. 6 mi., Prescott-Ashfork Hy., Yavapai Co. Grand total $2,893,115. Bids Oct. 21, awarded Nov. 2. William E. Willey, 206 S. 17th Ave., Phoenix, Ariz., state engr. CD 10/25, under LB.

▲ **ARIZONA**—State Hy. Dpt., 206 S 17th Ave., Phoenix.

Wallace & Wallace, Contractors, P. O. Box 470, Phoenix, CA **$1,405,173**, grading, draining, subgrade seal, select material, aggregate base, emulsified asphalt seal coat, construction steel girder bridge, beginning approx. 2 mi. east of Williams, extending east over U. S. Route 66, approx. 3.9 mi. toward Flagstaff, Ashfork-Flagstaff Hy., Coconino Co., Bids Oct. 28, awarded Nov. 2. CD 11/1, under LB.

WASHINGTON—State Hy. Comn., Transportation Bldg., Olympia, Bids opened 11/1,

Wash.—A. Radakovich, 2361 Lynnwood Dr., Longview, Wash. LB **$491,004**, (8 bidders), clearing, draining, grading, surf., bit. surf. treatment, cement-treated base, b. conc. paving 1.572 mi. Primary State Hy. 12, Cathlamet to Abe Creek, FA F-004-2(17), Wahkiakum Co.;

Wash.—Erickson Paving Co., 14466 Sunset Hy., Bellevue, Wash., LB **$126,494**, (12 bidders), draining, grading, surf. bit. surf. treatment, fencing 0.633 mi. Primary State Hy. 7, for East Vantage Interchange, FA I 90-3 (10)133, Unit 1, Grant Co. CD 10/13.

† **Pettijohn Engineering Co.**, 4540 NE Cully Blvd., Portland, Ore., LB **$270,333**, Rocky Reach Columbia-Line No. 1 Douglas and Chelan Counties, Inv. 9190, WASHINGTON, Bonneville Power Admin., 1001 NE Lloyd Blvd., Portland, Ore. Bids Sept. 22. CD 9/9 under LB.

▲† **Jensen & Rasmussen Co. and Beck Corp.**, Box 89, Sunnyside, Wash., LB **$1,104,342**, est. $1,194,386, (13 bidders), river and booster pumping plants discharge line, Chief Joseph Dam Proj., Wenatchee, DC 5400, WASHINGTON. Bureau Reclamation, Dpt. Interior, East Wenatchee, Wash. Bids Nov. 3. CD 10/31.

† **WASHINGTON** — Bureau Pub. Rds., Dpt. Commerce, Morgan Bldg., Portland, Ore., Bids opened 10/28,

A. DeCoria, Box 241, Auburn, Wash., LB **$761,990**, est. $745,758, (4 bidders), grading, constr. two bridges 2.5 mi. Cascade Wagon Rd., near Diablo Dam Proj. 32-A1, 8, Whatcom Co. CD 10/13.

Hoagland-Findley Engineering Co., Dexter Horton Bldg., Seattle, Wash., LB **$167,500**, (5 bidders), nine sewage lift stations to serve Sheridan Beach and Sheridan Heights, SEATTLE, WASH. Lake City Sewer Dist., 12721 30th Ave. N. E., Seattle, Wash. Hill & Ingman, 3104 Western Ave., Seattle, Wash., engrs. Bids Oct. 31, CD 10/14;

Murphy Bros., Inc., 2929 Austin St., Seattle, Wash., LB **$129,453**, 13,970 ft. 6 and 8 in. sewers, Sheridan Beach and Sheridan Heights (Seattle, Wash.).

▲ **OREGON**—State Hy. Comn., Hy. Bldg., Salem, Bids opened 11/1,

Ore.—Peter Kiewit Sons Co., 405 E. Main St., Medford, Ore., CA **$3,032,472**, (7 bidders), grading 2.29 mi. Pacific Hy., FAIHP I 5-1(23)28, Jackson Co.;

Ore.—Morse Bros., Lebanon, Ore., CA **$222,426**, (2 bidders), grading, paving 0.87 mi. Santiam Hy., Proj. FAP U 196(22), Linn Co. CD 10/19.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles, Bids opened 11/3,

Darkenwald Constr. Co., Inc. and Morrison-Knudsen Co., Inc., 411 West 5 St., Los Angeles, Calif., LB **$7,168,660**, (9 bidders), grading 10 mi. future freeway route Sierra Hy. (U. S. Hy. 6) between San Canyon and Escondido Canyon Rds. east of Solamint, Los Angeles Co. CD 9/28.

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento,

Granite Constr. Co., P. O. Box 1900, Watsonville, Calif., CA **$1,187,298** reconstr., wid'n. and realignment 8.7 mi. Ebbetts Pass Hy. between Angels Camp and ½ mi. east of Murphys, incl. bridge over Six Mile Creek, Calaveras Co. Bids Oct. 26. CD 10/28, under LB.

† **Price-McNemar Constr. Co.**, 13726 Saticoy St., Van Nuys, Calif., CA **$747,200**, Imprvt. Nike-Hercules Sys., Los Angeles and Orange Counties, CALIFORNIA. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Oct. 18.

John E. Northrop Co., 931 Foothill Blvd., LaCanada, Calif., LB **$330,263**, (7 bidders), constr. Eastside Rd., Union Valley Reservoir, Upper American River

Proj., El Dorado Co. Inv. No. 2216, SACRAMENTO, CALIF. Sacramento Municipal Utility Dist., 1708 59 St., Sacramento, Calif. Bids Nov. 1. CD 10/6.

▲ **Westinghouse Electric Corp.**, 3 Gateway Center, Pittsburgh 30, Pa., CA $1,608,000, Saline Water Conversion Demonstration Plant, Point Loma, SAN DIEGO, CALIF. Saline Water Div., Dpt. Interior, C St. between 18 and 19 Sts. N.W., Wash., D. C. Bids Oct. 18. CD 10/20, under LB.

BUILDINGS—LB & CA

Strom Constr. Co., 1727 Fawcett St., Tacoma, Wash., LB $404,145, (3 bidders), general contract 55,286 sq. ft. JUNIOR HIGH SCHOOL, LACEY, WASH., North Thurston School Dist. No. 3, Lacey, Wash. Bids Oct. 26. CD 10/17.

G. Kirkebo & Son, 1410 Mountain View, Tacoma, Wash. CA $546,473, HIGH SCHOOL addn., South Colby ELEMENTARY SCHOOL addn., PORT ORCHARD, WASH. School Dist. 402, Port Orchard, Wash. Bids Oct. 24. CD 10/31, under LB.

B & R Constr. Co., 110 Market St., San Francisco, Calif., LB $429,142, (2 bidders), general contract EDUCATION-PSYCHOLOGY BLDG., Humboldt State College, W.O. 4304GC-48, 4464GC, ARCATA,, CALIF. State Div. Architecture, 1120 N St., Sacramento, Calif. Bids Nov. 1. CD 10/11.

▲ **Ledon Corp.**, 15630 S. Crenshaw, Gardena, Calif., Owner Builds, $1,770,154, 95 DWELLINGS, Tract 2986, Baywood Dr., Wardman Dr., BREA, CALIF.

Continental Bldg. Co., 2006 W. Burbank Blvd., Burbank, Calif., CA $225,000, PLANT, 211 S. Lake St., BURBANK, CALIF. Gordon Jones, 2721 Empire, Burbank, Calif.

Balfern Corp., 16901 S. Western Ave., Los Angeles, Calif., CA $567,740, 49 DWELLINGS, Tract 25801, 157 St., Darlan St., Lorella and Sandel Aves., COMPTON, CALIF. Moray Land Co., 16901 S. Western Ave., Los Angeles, Calif.

▲ **Chacksfield Constr. Co.**, 1346 W. 155 St., Gardena, Calif., Owner Builds, $1,520,000, 94 DWELLINGS, Tarct 24875 Valmeyer, Catalina, Budlong, S. Berendo and Broadwell Aves. and Cassidy St., GARDENA, CALIF.

LaMount Corp., 895 W. Whittier Blvd., La Habra, Calif., Owner Builds, $930,000, 93 DWELLINGS, Tract 25754, Recento, Baston Tortosa and LaGuardia Aves., Mescal and Barrosa Sts., LA PUENTE, CALIF.

▲ **Diverco Constr.**, 10238 Lakewood Blvd., Downey, Calif., CA $1,500,000, HOSPITAL addn., 3630 Imperial Hy., LYNWOOD, CALIF. St. Francis Hospital, 3630 Imperial Hy., Lynwood, Calif.

Glenford Homes, Inc., 265 N. Robertston Blvd., Beverly Hills, Calif., CA $548,535, 30 stucco DWELLINGS, Tract 23953, MONTEBELLOE, CALIF. Crosby Estates, 265 N. Robertson Blvd., Beverly Hills, Calif.

▲ **Frank H. Ayers & Son Constr.**, 216 61 St., Newport Beach, Calif., CA $1,144,300, 77 stucco DWELLINGS, Tract 772, NEWPORT BEACH, CALIF. Newoprt Shores Co., 216 61 St., Newport Beach, Calif.

▲ **Harlan Lee Bldg. Co.**, 4525 Sherman Oaks Ave., Van Nuys, Calif., CA $1,302,600, 57 stucco Dwellings, Tract 23253, Jutland, Texhoma, Shoeshone Aves., Marilla and Superior Sts., NORTHRIDGE, CALIF. Trans World Financial Corp., 9460 Wilshire Blvd., Beverly Hills, Calif.

Davies, Keusder & Brown, 9950 Jefferson Blvd., Culver City, Calif., CA $755,640, AUDITORIUM, Mira Costa High School, Manhattan Beach, REDONDO BEACH, CALIF. South Bay Union High School Dist., 207 N. Francisco, Redondo Beach, Calif. Flewelling & Moody, 766 Colorado Blvd., Los Angeles, Calif., engrs. Bids Oct. 12, awarded Oct. 30. CD 7/19, under LB.

▲ **K & T Constr. Co.**, 5919 W. 3 St., Los Angeles 36, Calif., CA $1,602,600, 67 stucco DWELLINGS, Halsey and Armstead Sts., Swinton, Collett and Woodley Aves., Tract 23670, SAN FERNANDO, CALIF. Rinaldi Estates, 5919 W. 3 St., Los Angeles 36, Calif.

Revue Studios, 3900 Lankershim Blvd., Universal City, Calif., Owner Builds, $500,000 SOUND STAGES, 3900 Lankershim Blvd., UNIVERSAL CITY, CALIF.

Arthur Kaplan, 8833 Sunset Blvd., Los Angeles 46, Calif., Owner Builds, $442,000, brick OFFICE, 4419 Van Nuys Blvd., VAN NUYS, CALIF.

CANADA

HEAVY CONSTRUCTION—BA

▲ **Man., Winnipeg**—AIR TERMINAL—BA 11/25—Dpt. Transport, Hunter Bldg., Ottawa, Ont., air terminal, Winnipeg International Airport. $14,000,000. Plans deposit $350. Extended date. Green, Blankstein, Russell & Assocs., 222 Osborne St. N., archts. CD 10/28.

Ont., Peterborough—BA 11/28—City, City Hall, sewage disposal addn., incl. admin. and blower bldg., aeration and final settling tanks, return sludge pumping station, digestion tank, etc. $905,000. Plans deposit $50. Gore & Storrie Ltd., 1130 Bay St., Toronto, engrs. CD 4/12.

BUILDINGS—BA

Sask., Regina—FEDERAL—BA 12/14—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., 3 story, 65x190 ft., federal bldg., for National Revenue, Income Tax Dpt., 12th Ave. and Smith St. $700,000. Black, Larson, McMillan & Assocs., 3rd Fl., Black Block, Regina, archts. CD 5/16.

HEAVY CONSTRUCTION—LB & CA

BRITISH COLUMBIA—B. C. Govt., Parliament Bldgs., Victoria.

Superior Concrete Products Ltd., 2010 E. Keith Rd., North Vancouver, B. C., CA $589,218, supply precast post-tensioned box girders and I-beams for nine bridge structures on Trans-Canada Hy., Vancouver East and Burnaby Dist. CD 8/12, under LB.

S. McNally & Sons, Ltd., 215 Superior St., Hamilton, Ont., LB $501,014, (11 bidders), 11-span bridge, steel H piles, Rebecca St., OAKVILLE, ONT. Town, Town Hall, Oakville, Ont. Bids Oct. 27. CD 10/18.

Rolland Dumont, Inc., 94 St. Louis St. Levis, Que., CA $253,000, sewers, PINTENDRE (SUBURB of LEVIS), QUE. Municipality of St. Louis de Pintendre, Municipal Hall, Pintendre, Que. Pierre Langlais, 105 Cote de la Montagne, Quebec City, Que., engrs.

BUILDINGS—LB & CA

W. H. Dodd Constr. Co., Ltd., 33 Connie St., Toronto, Ont., CA Est. $400,000, 65,000 sq. ft. INDUSTRIAL BLDG., Bramalea subdivision, No. 7 Hy., BRAMPTON, ONT. Bramalea Consolidated Developments Ltd., 11 Adelaide St. W., Toronto, Ont.

George A. Crain & Sons, Ltd., 555 Cambridge St., Ottawa, Ont., CA Est. $800,000, 2 story, air-conditioned DEPARTMENT STORE expansion, OTTAWA, ONT. Charles Ogilvy Ltd., 126 Rideau St., Ottawa, Ont. Bids Oct. 25. CD 10/19.

Taylor Woodrow (Canada) Ltd., 42-48 Charles St. E., Toronto 5, Ont., 2 and 3 story, 45,000 sq. ft. rein.-con. block RESEARCH LABORATORY, Kipling Ave., TORONTO, ONT. Hydro Electric Power Comn. of Ontario, 620 University Ave., Toronto, Ont. Bids Oct. 18. CD 9/19.

Charles Duranceau Ltee, 2545 Jacques Hertel St., Montreal, Que., LB $749,500, (9 bidders), Secondary Park SCHOOL, STE. AGATHE DES MONTS, QUE. School Bd. of Ste. Agathe des Monts, P. O. Box 300, St. Agathe des Monts, Que. Bids Oct. 26. CD 10/19.

J. P. Trahan Ltee, 178 Mercier St., St. Johns, Que., CA $560,670, SEMINARY PAVILION, ST. JOHNS, QUE. Seminaire de St. Jean, Montcalm Blvd., St. Johns, Que. Bids Oct. 20. CD 10/2

PROPOSED PROJECTS

WATER SUPPLY

▲ **Calif., Santa Fe Springs**—City, City Hall, defeated $6,125,000 bonds Oct. 25, water supply.

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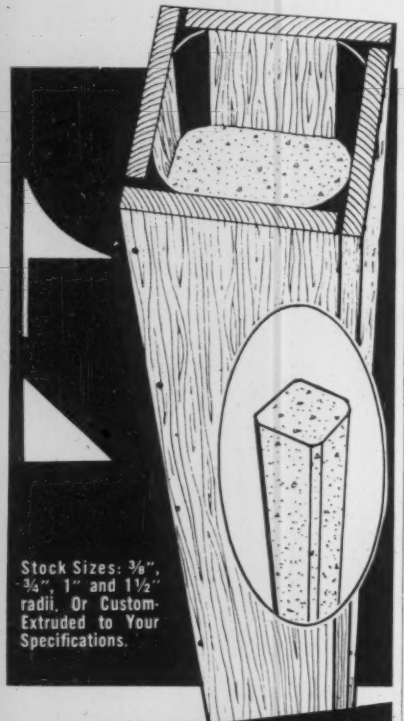

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James M. Montgomery, 535 E. Walnut St. Pasadena, consult. engr. CD 9/29.

▲ **Tex., Greenville**—City, City Hall, water mains, laterals distr. $1,989,000. Forrest & Cotton, 600 Vaughn Bld., Dallas, consult. engrs. CD 8/26.

SEWERS, WASTE DISPOSAL

▲ **N. J., Parsippany**—Troy Hills-Twp. Parsippany-Troy Hills, Municipal Bldg., sewerage sys. incl. collecting, trunk, intercepting sewers, 2 pumping stations with force mains, sewage treatment plant. $3,100,000. Constr. 1962.

▲ **Tex., Fort Worth**—City, City Hall, bond election Dec. 13, sanitary sewer extens. $19,000,000; storm drainage, $3,000,000. CD 9/17/51.

▲ **Tex., Houston**—Harris County, Comrs. Court, Courthouse, open-closed storm drainage, $750,000; sanitary sewers, $600,000.

▲ **Vt., St. Johnsbury**—Village, Village Hall, sewerage and sewage treatment facilities, Proj. No. P-VT-3055. $1,472,890. $60,500 for final planning advanced.

▲ **Va., Radford**—City, City Hall, sewage treatment plant, $800,000; sewer interceptor and outfall lines, $300,000. Wiley & Wilson, CourtInd. Bldg., Lynchburg, engrs. CD 4/25.

▲ **Ont., Chatham**—City, City Hall, sewage disposal plant. $5,339,620. Todgham, Case & McDonald, 21 Seventh St., consult. engrs. CD 12/14.

BRIDGES

▲ **North Carolina**—Thomas H. Wright Jr., Acme Bldg., Wilmington, causeway closing Moore's inlet for connection Wrightsville Beach with Shell Island. $5,000,000. Henry Vonoesen & Assocs., 154 W. Renovich Circle, Wilmington, consult. engrs.

▲ **N. C., Charlotte**—City, City Hall, railway-grade separation, $3,500,000. Whitehead & Zickel, 1330 W. Peachtree St. N.W., Atlanta, Ga., consult. engrs. CD 10/20/58.

▲ **Va., Hopewell**—Norfolk & Western R.R., General Office Bldg., Roanoke, and Dpt. Hys., 1221 E. Broad St., Richmond, underpass, Randolph Rd. $1,000,000.

STREETS AND ROADS

OHIO—Dpt. Hys., State Dpts. Bldg., Columbus, Zone 15,

Geauga Co.—road from intersection Rtes. 528 and 87 Middlefield to Rte. 88, Parkman, $750,000. Alden E. Stilson & Assocs., 75 Public Square, Cleveland, Zone 13, consult. engrs.

▲ **Va., Norfolk**—City of Norfolk, Dpt. P. Wks., Norfolk, plans by Lublin & McGaughy, 220 W. Freemason St., widening Hampton Blvd., etc., redevelopment highway through Atlantic City project, Va. R-1. $2,600,000.

EARTHWORK, WATERWAYS

▲† **Oklahoma**—U.S. Eng., Box 61, Tulsa, bridge over Arkansas River, railroad overpass, smaller structures relocating US 64, Keystone Reservoir. $1,500,000. Bids in December. CD 9/29/59.

▲ **Wash., Seattle**—King Co. Drainage Dist. County-City Bldg., drainage facilities, area from Roxbury St. to S. 130 St. Ambaum Blvd. to Puget Sound, $3,000,000. W. F. Winters, co. engr.

AIRPORTS

▲† **O., Dayton**—HOUSING—U.S. Eng., 830 W. Broadway, Louisville, Ky., plans by Lorenz & Williams, 2600 Far Hills Ave., rehabilitate 2,000 unit Page Manor Wherry Housing. $6,000,000. CD 3/12/58.

UNCLASSIFIED

▲ **Me., South Portland**—DRYDOCK—Walsh Constr. Co., 711 3 Ave., New York, N. Y., will not construct drydock, incl. 3 sets seating gates to handle ships more than 1,000 ft. long. $10,000,000. Project abandoned. CD 1/21.

PUBLIC BUILDINGS

▲ **Ark., Osceola**—PLANT—City, City Hall, voted bonds Oct. 25, plant to manufacture greeting cards and gift wrapping paper, to be leased to American Greeting Card Company of Chicago. $3,500,000. CD 10/10.

▲ **Calif., Covina**—SCHOOLS—Covina Valley Unified School Dist., 19009 E. Badillo St., voted $7,000,000 bonds and $14,000,000 State loan Oct. 18, 9 elementary schools, 2 intermediate schools and 2 high schools.

▲ **Calif., El Segundo**—SCHOOL—El Segundo Unified School Dist., 203 Richmond Ave., voted $4,500,000 bonds Oct. 25, Junior High School.

▲ **Calif., Hayward**—SCIENCE, etc.—State Div. Architecture, P. Wks. Bldg., 1120 N St., Sacramento, plans by Richard J. Neutra, 2300 Silver Lake Blvd., Los Angeles, 4 story, bsmnt., 300,000 sq. ft., 300-room, steel, concrete, greenhouses on roof, science, $4,300,000; 3 story, 107,000 sq. ft., 182-room, concrete, steel and alumiaum fine arts, $2,300,000, Alameda County State College.

▲ **Colo., Fort Morgan**—SCHOOL EXPANSION—School Dist. No. 3, Fort Morgan, $1,200,000 bond election, Dec. 3, school expansion. CD 6/10.

▲ **Hawaii, Honolulu**—OFFICE—Hawaiian Government Employees Assn., 400 S. Beretania, 11 story office, Civic Center site, Halekauwila and Mililani Sts. $1,000,000.

▲† **Idaho, Arco**—TEST REACTOR—Atomic Energy Comn., Idaho Operations Office, advanced test reactor, National Test Reactor Station, $24,000,000, Ebasco Services, Inc., 2 Rector St., New York, N. Y., and Babcock & Wilcox Co., 161 E. 42nd St., New York, N. Y., consult. engrs. Phill Petroleum Co., 1708 Utica Sq., Tulsa, Okla., will make conceptual design. CD 6/15.

▲ **Ill., Palatine**—SCHOOLS—School Dist. No. 15, Washington Court, voted bonds Oct. 22, Junior High School, Rolling Meadows; elementary school, Palatine, $1,100,000. A. J. Del Bianco, 5501 Irving Park Rd., Chicago, archt.

Iowa, Brooklyn—HIGH SCHOOL—Brooklyn-Guernsey-Malcom Comm. School Dist., 50,000 sq. ft. high school. $750,000.

Iowa, Marcus—HIGH SCHOOL—Marcus Community School Dist., 1 story high school. $758,000.

Iowa, Rockford — SCHOOL — Rudd-Rockford-Marble Rock Comm. School Dist. plans by Woodburn & O'Neill, 201 Jewett Bldg., Des Moines, Senior High School. $750,000. CD 8/18.

Kan., Ashland—HIGH SCHOOL—School Dist. No. 1, voted $850,000 bonds, brick, concrete, etc., high school. John Hines, 447½ Ida Ave., Wichita, archt. CD 10/24.

▲ **Ky., Georgetown**—PLANT—City, City Hall, plant, $2,500,000. Hoover Ball Bearing Co., lessee.

▲ **Mass., Hanover**—REGIONAL VOCATIONAL SCHOOL—South Shore Regional School Dist., South Hanover, plans by Korslund, LeNormand & Quann, Inc., 506 Washington St., Norwood, regional vocational school, Main and Webster Sts. $1,000,000.

▲ **Mass., Hingham** — SCHOOL — Town, Supt. Schools, plans by Smith & Sellew, 283 Dartmouth St., Boston, Junior High School, off Main St., Queen Anne Site. $1,567,000. Constr. early 1961. CD 7/15.

▲ **Mass., Natick**—HOSPITAL IMPRVS.—Town, Bd. Selectmen, expand, repair and imprv. Leonard Morse Hospital. $2,500,000. CD 11/23/59.

▲ **Mass., Quincy**—HOUSING FOR THE ELDERLY—City Housing Auth., 9 Bicknell St., plans by D'Orsi & Co., 184 Boylston St., Boston, State Aided housing for the elderly. $1,000,000. Constr. 1961.

▲ **Mass., South Weymouth**—HEALTH CENTER—Town, Bd. Selectmen, health center, Weymouth Heights Section. $1,500,000.

▲ **Minn., Bloomington**—SCHOOLS—Bd. Educ., Ind. School Dist. No. 271, voted $4,000,000 bonds Oct. 26, Junior High School, 84th St. and Russell Ave., $2,900,000; elementary school, 82nd St. and Columbus Ave., $600,000. CD 10/19.

▲ **Minn., Mounds View**—SCHOOL—Bd. Educ., Indpt. School Dist. No. 621, $2,400,000 bond election Nov. 29, incl. high school addn., $1,000,000. CD 7/14.

▲ **N. Y., Baldwin**—SCHOOLS—Bd. Educ., UFSD No. 10, Pershing Rd., voted bonds Oct. 26, Junior High School, $2,725,000; elementary school, $1,600,000. CD 10/20.

▲ **Minn., North St. Paul**—SCHOOL—Bd. Educ. Independent School Dist. No. 622, $3,850,000 bond election Nov. 22, Junior High School, $1,750,000; grade school, $500,000. CD 1/26/59.

▲ **Minn., St. Charles**—HIGH SCHOOL, etc.—Bd. Educ. Independent School Dist. No. 858, plans by Haarstick-Lundgren & Assocs., N 212 First National Bank Bldg., St. Paul., high school and remodel existing school. $1,250,000. Constr. 1961.

▲ **Minn., St. Paul**—HIGH SCHOOL—Bd. Educ. Special School Dist. No. 2, City Hall and Courthouse, plans by G. S. Silverman, School Bd. archt., Highland Park High School, Edgcombe Rd. and Snelling Ave. S. $2,500,000. CD 12/1/59.

▲ **Minn., St. Paul** — TECHNICAL-VOCATIONAL HIGH SCHOOL—Bd. Educ. Special School Dist. No. 2, City Hall and Courthouse, plans by G. S. Silverman, School Bd. archt., technical-vocational high school, Marshall and Western Aves. $5,500,000. CD 1/7.

▲ **Minn., St. Paul**—SCHOOL—Bd. Educ. Special School Dist. No. 2, Courthouse, plans by Toltz, King, Duvall, Anderson & Assocs., Inc., 1408 Pioneer Bldg., Johnson High School near Hyacinth Ave. and Arcade St. $3,300,000. Bids early 1961.

▲ **Minn., St. Paul**—SCHOOL—Bd. Educ. Special School Dist. No. 2, City Hall and Courthouse, plans by Haarstick-Lundgren & Assocs., N. 212 First National Bank Bldg., East High School, Fremont Ave. and Hazelwood St. $3,300,000. Constr. Spring 1961. CD 3/28/55.

▲ **Mont., Havre**—HIGH SCHOOL—School Dist. No. 16, Havre, plans by Knight & Van Teylingen, 111 3 N. St., Great Falls, high school. $1,932,375. CD 10/26.

N. J., Paterson—DORMITORY—Paterson State College, Pompton Rd., Wayne, plans by LaPierre, Litchfield & Partners, 175 Market St., 4 story women's dormitory, North Haledon. $750,000. Theodore J. Kauffeld, 150 Broadway, New York, N. Y., consult. engr. Bids late December.

▲ **N. Y., Bethpage**—SCHOOL—Bd. Educ., UFSD No. 21, Stewart Ave., voted bonds Oct. 22, 24-room elementary school, Broadway and Plainview Ave. $1,255,000. Frederic P. Wiedersum Assoc., 65 Roosevelt Ave., Valley Stream, archts.

▲ **N. Y., Brooklyn**—SCHOOL—Bureau Constr. Bd. Educ., 42-15 Crescent St., Long Island City, plans by De Young & Mosowitz, 205 E. 42 St., New York, Zone 17, Proj. E-488, Junior High School 275, Linden

Blvd. and Rockaway Ave., Brownsville Area. $3,765,000. Bids in December. CD 1/25.

▲ **N. Y., East Meadow**—LABORATORY, etc.—County of Nassau, Old County Court House, Franklin Ave., Mineola, plans by Eggers & Higgins, 100 E. 42 St., New York, N. Y., 4 story, incl. bsmnt. morgue, administrative floor and two laboratory floors. $3,000,000. CD 12/4/59.

▲ **N. Y., Midland Beach**—SCHOOL—Bureau Constr., Bd. Educ., 42015 Crescent St., Long Island City, plans by Frederick P. Wiedersum Assocs., 10 Columbus Circle, New York, N. Y., Proj. E-464, Junior High School No. 2, Bedford and Boundary Aves., Richmond Boro. $3,300,000. Joseph P. Loring, 25 W. 45 St., New York, Zone 36, mechanical engr. Kenneth Tomann, 450 7 Ave., New York, Zone 1, structural engr. Bids in December. CD 4/4.

▲ **N. Y., Rochester**—APARTMENTS—City, City Council, plans by Stevens & Bertin, 553 N. Goodman St., 9 story with 3 story wing, 200 unit apartments for elderly, Plymouth Ave. S. $2,000,000. Constr. Spring 1961.

▲ **N. D., Bismarck**—SCHOOLS—Bd. Educ., Bismarck, voted $1,850,000 bonds Oct. 24, Junior High School, Senior High School addn. CD 10/4/57.

▲ **Okla., Bethany**—SCHOOL—Putnam City School Dist. No. 1, voted bonds Oct. 25, two elementary schools, $1,170,000. Hudgins Thompson & Ball, 1411 Classen St., Oklahoma City, archts. CD 10/19.

Pa., Oxford—DINING HALL, etc.—General State Authority, 18th and Herr Sts., Harrisburg, plans by Carroll, Grisdale & Van Alen, 6 Penn Center Plaza, Phila., dining hall and student union bldg., for Lincoln University, Proj. 1101-4, $700,000, CD 8/5; boiler plant and shops for Lincoln University, Proj. 1101-4, $250,000. W. J. Lynott, Jr., 324 Franklin Ave., Scranton, consult. engr. A. F. Jones, c/o owner, ch. engr.

Tenn., Athens—CIVIC CENTER—City, City Hall, plans by Bianculli & Palm, Volunteer Bldg., Chattanooga, civic center, $725,000.

▲ **Tex., Amarillo**—SCHOOL—Amarillo Ind. School Dist., plans by Clayton B. Shiver, Fisk M & P Bld., high school, $2,000,000. CD 5/15/59.

▲ **Tex., El Paso**—SCHOOLS—El Paso Ind. School Dist. plans by Kuykendall & McCombs, 5801 Trawbridge St., Elementary School No. 1, $750,000; Elementary School No. 2, $675,000; Elementary School No. 3, $850,000; Junior High School unit, $1,550,000; Senior High School unit, $1,500,000. CD 4/28.

▲ **Tex., McAllen**—SCHOOL—McAllen Independent School Dist., bond election Jan. 21, high school, $2,750,000.

Tex., San Antonio—SCHOOL—Northside Independent School Dist., Bandera Rd., Junior-Senior High School, $900,000. CD 10/24/60.

▲ **Va., Norfolk**—AUDITORIUM—Norfolk Div., College of William & Mary, Norfolk, Hampton Blvd., auditorium, $2,000,000.

▲ **Va., Norfolk**—STUDENT CENTER—Norfolk Div., College of William & Mary, Hampton Blvd., student center. $1,000,000.

▲ **Va., Norfolk** — CLASSROOMS, etc. — Virginia State College, Norfolk Div., Norfolk, vocational trades classrooms, $956,520; fine arts classrooms, $400,000; home economics classrooms, $400,000; student activities center, $400,000; classroom addns., $400,000; science laboratory, $400,000; communications center, $900,000. CD 9/18/59.

▲ **Va., Richmond**—CIVIC CENTER—City, City Hall, plans by Ballou & Justice, 300 W. Franklin St., offices for Dpts. of Safety, Health, Welfare, Clay St. $13,000,000. CD 10/28.

Va., Richmond—LIBRARY—Richmond Professional Institute, Shafer and Franklin St., library. $800,000.

Va., Richmond—ARMORY—State of Virginia National Guird, State Office Bldg., armory, Pine Camp. $900,000.

▲ **Wis., Kenosha**—SCHOOL—Bd. Educ., 5515 Sheridan Rd., plans by L. Monberg & Assocs., 815 57th St., Southwest Junior High School, $2,175,000. CD 1/27.

▲† **Wyo., Cheyenne** — HOUSING — Procurement Office, Warren Air Force Base, plans by J. T. Banner & Assocs., 4091 S. 4th St., Laramie, 100 unit Capehart Housing, Warren Air Force Base, $1,700,000. CD 9/29.

▲ **Ont., Toronto**—SCHOOL—Bd. Educ., 155 College St., Osler Senior Public School, $1,701,000.

COMMERCIAL BUILDINGS

▲ **Ala., Birmingham**—BANK—Birmingham Trust National Bank, 112 N. 20th St., five story bank, drive-in tellers windows and tunnel topped by Second Ave., North between 20th and 19th Sts., $1,500,000.

▲ **Calif., Los Angeles**—APARTMENT—Hollywood Ardmore, Inc., c/o Robert C. Lesser, archt., 8230 Beverly Blvd., 12 story, rein.-con. apartment, 1850 Whitley Ave. $4,000,000.

▲ **Calif., Tarzana (Los Angeles)**—DWELLINGS—Shadow Hills Bldg., 4525 Sherman Oaks Ave., Sherman Oaks, plans by Ridgely & Wexler, 16610 Ventura Blvd., Encino, 49 frame, stucco dwellings, Tarzana Dist. $1,152,000.

▲ **Calif., Walnut Creek**—APARTMENT—Owner, c/o Lincoln Development Co., 3190 Old Tunnel Rd., Lafayette, 185 unit brick, stone apartment, Walnut Blvd. and Sierra Dr. $1,850,000.

▲ **Conn., Bridgeport**—APARTMENTS—Palmer Tarinelli Constr. Co., Inc., 144 Island Brook Ave., 304 units, garden apartment bldgs., Reservoir Ave. $1,520,000.

(Continued on page 140)

"Wherever Concrete Meets Concrete"

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NON-EXTRUDING FIBER EXPANSION JOINT

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Why all three models of Cat Tractor-Scrapers in our fleet?

Gordon Ball, President, Gordon H. Ball, Inc., Danville, California

"It's simple. We've learned that we get the highest, most economical production with machines that are matched to the job. Each job we do is different—and conditions vary on each job. The most important common factor is the need for high production at lowest cost.

"No one machine can do everything best. Some can handle grades better. Some can haul bigger loads faster. Others can work in tighter quarters. So we want the machines that best fit the jobs. This gets us to Cat Tractor-Scrapers. Each one—DW21, DW20, 619—gives us high production under a broad range of applications. And each does it *economically*. But each can handle certain conditions better than the others. With only one model, we would have to live with conditions that limit the machine's effectiveness on parts of the job to get best over-all production. With all three models, we can use the one that works best on each phase of the project, for highest total production at lowest cost.

"What are these conditions? Take bad grades or soft underfooting. Our versatile DW21s handle these with comparative ease. When we can take advantage of their high speed on long hauls, we use our high production DW20s. And when we have to work in tight quarters where maneuverability is essential, we bring in our smaller 619s. This doesn't mean any of them sit idle when these conditions don't exist. We simply take care of the special conditions with the best suited machines, and put the rest to work on other jobs.

"Take a look at typical assignments. The DW20s and DW21s are working on highway projects. Hauls up to two miles permit efficient use of the high travel speeds of the four-wheel DW20s. Steep grades, particularly around Conway Summit, are best handled by the two-wheel DW21s. The 619s easily handle dirtwork in the deep narrow channels of the San Lorenzo Creek Flood Control Project.

"Of course, a major consideration is their ability to do this month in and month out, with little lost time for maintenance. They must be, and are, ready to work when we need them, and able to stay on the job until the work is done. This combination of high production, ability to handle any job and low maintenance helps us move our dirt fast at the lowest possible cost."

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A TRACTOR-SCRAPER FOR EVERY JOB

DW21 Series G

High producer on bad grades and in soft going

345 HP (Maximum Output)

22.6 MPH

Optional SynchroTouch Transmission Control—split-second shifting with the efficiency of direct drive

Matching 470B Scraper—
19.5 cu. yd. struck
27 cu. yd. heaped

DW20 Series G

High producer on long hauls

345 HP (Maximum Output)

35.8 MPH

Optional SynchroTouch Transmission Control

Choice of Scrapers:
456B—19.5 cu. yd. struck
27 cu. yd. heaped
482B—24 cu. yd. struck
34 cu. yd. heaped

619 Series B

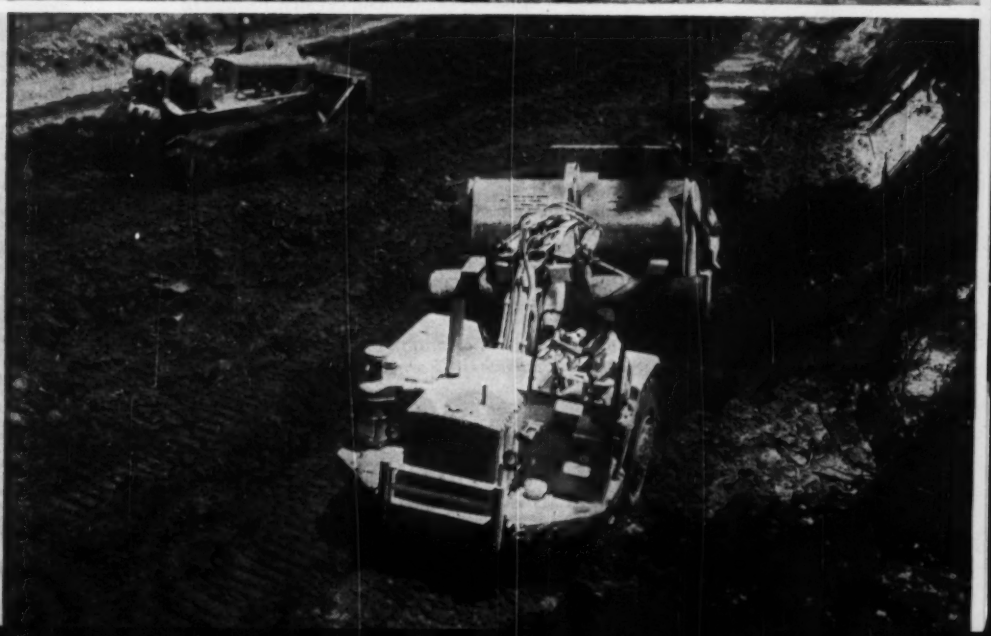
High producer in tight quarters

225 HP (Maximum Output)

30.2 MPH

30-ft. turning diameter

Matching 442B Scraper
14 cu. yd. struck
18 cu. yd. heaped



Fast, Economical Means of Encasing Vertical Supports with Concrete

Central YMCA, Des Moines, Iowa. Contractor: The Weitz Co., Inc. Architect: Wetherell & Harrison.

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(Continued from page 137)

▲ **Conn., Hartford**—OFFICE—Phoenix Mutual Life Insurance Co., 79 Elm St., plans by Harrison & Abramovitz, 630 Fifth Ave., New York, N. Y., 16 story, 200,000 sq. ft. office, south of State St. Plaza, and parking garage. **$2,200,000.** Edwards & Hjorth, 67 W 44, New York 36, N. Y., struct. engrs. Jaros, Baum & Bolles, 415 Lexington Ave., New York 17, N. Y., mech. engrs. CD 3/18.

▲ **D. C., Wash.**—HEADQUARTERS—Reserve Officers Assocs., 2517 Connecticut Ave. N. W., plans by Mills, Petticord & Mills, 3308 14th St. N. W., memorial headquarters building, southwest area, **$1,000,000.** Site not yet determined.

▲ **Fla., Orlando**—STORE—Montgomery Ward, c/o Betz & Bankemper & Assocs., archts., 319 Scott St., Covington, Ky., 220,000 sq. ft. store, W. Colonial Dr. **$2,000,000.** Albert E. O'Neall, 2626 Edgewater Dr., consult. engrs. (for paving drainage & sewers).

▲ **Fla., St. Petersburg**—APARTMENT—Dominion Contractors, Inc., 7100 Beach Plaza, St. Petersburg Beach, plans by Fred Schlotterlein, 7100 Beach Plaza St. Petersburg Beach, 10 story apartment. **$1,000,000.** Rader Assocs., 611 1st Ave. N., consult. engrs.

▲† **Ga., Gainesville**—SHOPPING CENTER—H. W. Wallis, P.O. Box 690, plans by Mastin & Summer, 3166 Maple Dr. N.E., Atlanta, 140,000 sq. ft. shopping center, **$2,000,000.**

▲ **Md., Wheaton**—HOMES—Connecticut Ave., Park, Inc., 10306 Royal Rd., Hillandale, plans by Anthony Campitelli, 7961 Eastern Ave., Silver Spring, 75 homes, near Viers Mill Rd. and Georgia Ave. **$1,725,000.**

▲ **Mass., Lowell**—SUPERMARKET—Stop & Shop, Inc., 393 D St., South Boston, supermarket, Church St. **$1,000,000.** Constr. 1961.

▲ **Mass., Methuen**—SHOPPING CENTER—Elm Farm Foods Co., 600 Columbia Rd., Dorchester, plans by Sumner Schein, 271 Huntington Ave., Boston, shopping center, Haverhill St. and Riverside Dr. **$1,000,000.** CD 8/22.

▲ **Mass., Worcester**—DORMITORIES—Holy Cross College, College St., plans by Maginnis & Walsh & Kennedy, 126 Newbury St., Boston, two dormitories, East and West of Lehy and Hanselman Halls. **$2,293,000.** Constr. 1961.

Mich., Southfield—COLLEGE OF ARCHITECTURE, etc.—Lawrence Institute of Technology, Northwestern Hy. and 10 Mile Rd., plans by Earl W. Pellerin, 18317 Westover Ave., Detroit, Zone 41, steel, brick, glass and aluminum College of Architecture and library. **$750,000.** Bids about January. CD 3/27/57.

▲ **Minn., St. Louis Park**—APARTMENTS—Embassy House Apartments, c/o B. Gingold & Assoc., archts., 814 Title Insurance Co., 400 2 Ave. S., Minneapolis, two 6 story apartments, Minnetonka Blvd. and Joppa Ave. **$1,750,000.** Constr. 1961.

▲ **Minn., St. Paul**—FINE ARTS—Macalester College, 1600 Grand Ave., fine arts on Campus. **$1,750,000.** Constr. 1962-1963.

Minn., St. Paul—STUDENT UNION—Macalester College, 1600 Grand Ave., plans by Magney, Setter, Leach & Lindstrom, Foshay Tower, Minneapolis, student union. **$700,000.** Bids 1961.

▲ **Mo., St. Louis**—BAPTIST STATE COLLEGE—Missouri Baptist Convention, c/o St. Louis Baptist College, 4257 Magnolia Ave., Zone 10, Baptist State College. Over **$1,500,000.**

▲ **N. J., Montclair**—DORMITORY, etc.—Montclair State College, Normal Ave. and Valley Rd., plans by Arthur Rigolo, U.S. Hy. 46 and Grove St., Clifton, 3 story 26,300 sq. ft. 104-bed dormitory, **$450,000;** science bldg., **$593,000;** library, **$1,110,000.** Vogelbach & Baumann, U.S. Hy. 22, Scotch Plains, mechanical engrs. for dormitory only. Kellermann & Dragnett, 65 Clifton Blvd., Clifton, structural engr. for dormitory only.

▲ **N. Y., Flushing**—APARTMENTS—Beechcroft Towers, c/o Jonathan Woodner Co., 575 Madison Ave., New York, Zone 22, six 15 story apartments and shopping center, 16 acre plot, Kissena Blvd. between Franklin and Elder Aves. **$25,000,000.**

▲ **N. Y., Jamaica**—OFFICE—New York Telephone Co., 140 West St., New York, Zone 7, plans by Voorhees, Walker, Smith, Smith & Haines, 101 Park Ave., New York, Zone 17, central telephone office and communications sys. for New York International Airport. **$5,000,000.** Bids probably in December.

▲ **N. Y., New York**—APARTMENT—Jack Resnick, 40 Vanderbilt Ave., Zone 17, plans by Horace Ginsbern Assocs., 205 E. 42 St., Zone 17, multi-story apartment, 87 St. and York Ave. southeast corner. **$1,900,000.**

▲ **O., Cincinnati**—OFFICE—Cincinnati Suburban Bell Telephone Co., 225 E. 4th St., plans by Hake & Hake, 2400 Gilbert Ave., 9 story, bsmnt., brick, stone, air conditioned office, 4th and Sycamore Sts., **$2,500,000.**

▲ **O., Columbus**—HOMES—Virginia Homes, Inc., 655 N. Cassady Ave., 500 homes, Millbrook development, near east side of city, **$6,800,000.**

▲ **O., Strongsville**—SHOPPING CENTER—Owner, c/o John M. Costello, 5755 Ridge St., Cleveland, Zone 29, 287,500 sq. ft. shopping center, parking, Pearl and Drake Rds., **$3,500,000.**

Ore., Roseburg—HOSPITAL—Mercy Hospital, Roseburg, plans by Roald, Schmeer & Harrington, Portland Trust Bldg., Portland, hospital addns. **$840,000.**

▲ **Pa., Pittsburgh**—CLASSROOM, etc.—University of Pittsburgh, 5th and Bigelow Blvd., General Classroom Bldg., **$3,250,000;** Common Facilities Bldg., **$2,750,000;** Service Bldg., **$2,500,000;** School of

Education, $2,500,000; School of Law, $2,250,000; Graduate School of Public and International Affairs, $1,250,000; Graduate School of Social Work, $1,000,000.

Tenn., Chattanooga — HOSPITAL — Memorial Hospital, Sister Marie Victoria, administrator, Citico Ave., plans by William A. Martin, 1102 James Bldg., hospital addn. Over $750,000.

▲ **Tenn., Kingsport**—OFFICE—Tennessee Eastman Corp., Eastman Rd., plans by Milton P. Robelot, 245 E. New St., 4 story, 92,000 sq. ft. office. $1,000,000.

▲ **Tex., Abilene**—DORMITORY—Abilene Christian College, Abilene, plans by F. C. Olds Co., 325 Hickory St., men's dormitory, $1,250,000. Bids 1st half of 1961. CD 5/9/56.

Tex., Burkburnett—TABERNACLE, etc.—Texas Baptist Assn., 1200-9th St., Wichita Falls, plans by Brasher-Spencer & Goyette, 2118 34th St., Lubbock, tabernacle, dining hall, swimming pool, FTM Rd. 1177, $750,000. Construction 1st ½ of 1961.

▲ **Tex., Dallas**—OFFICE—Coleman Development Corp., c/o Stanley Hickman Co., 1721 McKinney St., plans by John S. Lukens & Associates, c/o 1721 McKinney St., 7 story, 100,000 sq. ft., masonry office, Irving Blvd. off Inwood Rd. $1,600,000.

▲ **Tex., Dallas**—CONSUMERS MART—Consumers Mart, Jerry E. Young and Jim Costello, c/o John. A. Parnell, archt., 130 Casa Linda Plaza, 1 story, 150,000 sq. ft., consumers mart, load-bearing walls, etc., 3200 Blk. Buckner Blvd. $1,250,000.

Va., Norfolk—APARTMENTS—Snow Jr. & King Inc., 2415 Church St.; plans by Oliver & Smith, 333 W. Freemason St., 6 story Embassy Apartments, Granby St., between Fife and Forsythe Sts. $750,000. Bids early 1961.

▲ **Va., Richmond**—HOUSES—Linwood R. T. Garrett, 201 Ampthill Rd., 201 house subdivision, Wilkinson Rd., 1½ mi. north of Azalea Ave. $2,500,000.

▲ **Va., Richmond**—CLASSROOMS—University of Richmond, Richmond, plans by Baliou & Justice, 300 W. Franklin St., Richmond and Stainback & Scribner, 112 3rd St. N.E., Charlottesville, life sciences classrooms Over $2,000,000; chemistry classrooms; $500,000. CD 10/28.

▲ **Wash., Tacoma**—HOUSES—United Bldg. Co., Fife Sq. plans by D. F. Burr, Lakewood Center, 250 houses, Westgate Terrace between N. 28th and 38th Sts. west of Pearl St., $5,000,000. Constr. next year.

▲ **Wyo., Casper**—HOTEL-MOTEL—First Casper Development Corp., Casper, plans by Horace Brand Jr., 8285 W. 12th. St., Denver, Colo., 70,000 sq. ft. hotel-motel. $2,000,000.

▲ **Que., Montreal**—COLLEGE—Rev. Freres Jesuites, St. Jean de Brebeuf Collete, 3200 Cote St. Catherine Rd., college extension, Over $1,000,000.

▲ **Que., Pointe Claire**—HOSPITAL—Lakeshore General Hospital c/o J. A. Fraser, 124 Beaconsfield Blvd., Montreal, plans by Fleming & Smith, 1247 Guy St., Montreal, hospital, Farm 140, Over $1,000,000. CD 4/12.

INDUSTRIAL BUILDINGS

▲ **Ind., Logansport**—PLANT—Louisville Cement Co., 501 S. 2nd St., Louisville, Ky., portland cement mfg. plant, $10,000,000. Constr. in 1961.

N. Y., Rochester—RESEARCH and DEVELOPMENT CENTER—Pfaudler Permutit, Inc., 1000 West Avenue, plans by Barrows, Parks, Morin, Hall & Brennan, 133 East Ave., 40,000 sq. ft. research and development center, Henrietta. $750,000.

▲ **O., Akron**—RUBBER PLANT—Goodyear Tire & Rubber Co., 1144 E. Market St., synthetic rubber plant addn. $1,250,000. CD 1/21/46.

▲ **O., Masury**—FACTORY—General American Transportation Co., 135 S. La Salle St., Chicago, Ill., factory, $1,000,000.

▲ **O., Toledo**—PLANT—Standard Oil Co. of Ohio, Midland Bldg., Cleveland, isocracking plant, refinery addn., Cedar Point Rd. $3,000,000-$4,000,000. J. R. Jones, Engineering Dpt., Standard Oil Co., c/o owner, engr. CD 5/15/51.

▲ **Pa., Courtney**—PLANT ADDN.—West Penn Power Co., Cabin Hill, Greensburg, Mitchell Station generating plant addn. incl. 250,000 kw. turbogenerator. $43,000,000. Constr. 1961.

Tenn., Kingsport—WAREHOUSE-OFFICE—Farmer's Cooperative, Inc., 411 Cherokee St., plans by Milton P. Robelot, 245 E. New St., warehouse-office, $700,000.

▲ **Tex., Texas City**—PLANT—Monsanto Chemical Co., 800 N. Lindbergh Blvd., Creve Coeur 41, Mo., phenol chemical plant, 50 to 75 mil. lbs. annual capacity. $12,500,000. Construction 1961. CD 10/3.

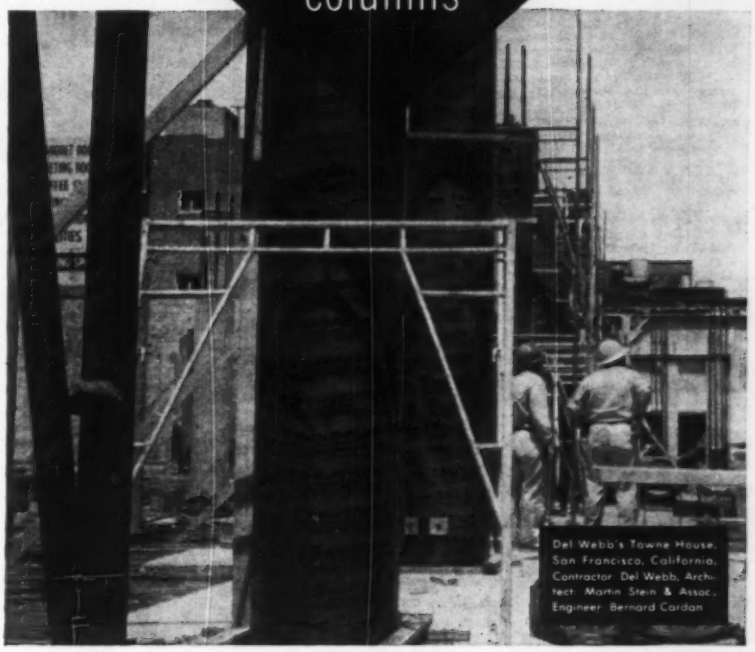
▲ **Tex., Denison**—PLANT—Pillsbury Co., Pillsbury Bldg., Minneapolis, Minn., plans by Ellerbe & Co., engrs.-archts., 333 Sibley St., St. Paul, Minn., 1 story, 120,000 sq. ft., refrigerated products plant, $2,000,000. CD 2/18/59.

▲ **Que., Montreal**—BOARD MILL—Turcotte Paperboard Mills Ltd., 5701 Cote St. Paul Rd., plans by Power Corp. Designers & Consultants Ltd., 355 St. James St. W., board mill addn. $1,250,000.

FOREIGN

▲ **India, Madras**—PAPER and BOARD MILL—Seshasayee Paper & Board Co. Ltd., Madras State, India, paper and board mill, Erode. $13,000,000.

You Save Eight Ways on round concrete columns


Del Webb's Towne House, San Francisco, California. Contractor: Del Webb. Architect: Martin Stein & Assoc. Engineer: Bernard Cordon

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FIBRE FORMS

For economy, speed and ease of handling, Sonoco SONOTUBE Fibre Forms are better than wood... better than steel... and the best in fibre. These lightweight, low-cost forms save contractors time, labor and money by providing the fastest, most economical method of forming all types of round concrete columns, piers, posts, underpinning, etc.

Count up your savings with SONOTUBE Fibre Forms:

SAVE cost of loading and shipping permanent forms to job site.

SAVE cost of bolting or nailing permanent forms together. SONOTUBE Fibre Forms can be placed easily by semi-skilled labor.

SAVE placing, plumbing, bracing time and labor.

SAVE stripping time—easily cut from column.

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SAVE job time because any number of columns can be set, poured at one time.

SAVE curing time and labor—provide self-cure without need of special compounds or treatments.

SAVE capital—there's no permanent investment in forms.

Use Sonoco SONOTUBE Fibre Forms and save time, labor, and money on round concrete columns. Order standard 18' lengths or specified lengths—sizes 2" to 48" I. D. Can be sawed.

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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS

November 23 Maine November 28 Connecticut

BUILDINGS—BA

Conn., Colchester—ELEMENTARY SCHOOL—BA 11/29—Town, School Bldg. Com., Central School, Colchester, Proj. No. Conn. 60-C-702-A10, Junior-Senior High School addn. to Colchester Elementary School, Norwich Rd., $625,000. Plans deposit $25. Extended date. Malmfeldt Assocs., 36 Pearl St., Hartford, Conn., archts. Bemis & Freeman, 36 Pearl St., Hartford, Conn., engrs. CD 11/4.

Mass., Worcester—POWER PLANT IMPRVTS.—BA 11/29—Commonwealth Mass., Dpt. Mental Health, Div. Bldg. Constr., 38 Chauncy St., Boston, M-209 Contr. 11, power plant imprvs. State Hospital. $519,000. Plans deposit $40. M. A. Dyer Co., 24 School St., Boston, archt. CD 7/30/53.

Conn., Danbury—MAINTENANCE, SERVICE and STORAGE CENTER—BA 11/30—State P. Wks. Comr., 165 Capitol Ave., Hartford, Proj. CP-S-64, 1 story, maintenance, service and storage center for State Hy. Dpt., Great Plains. $500,000. Plans deposit $15. Rossetti & Mileto, 185 Main St., Bristol, archts. Stelling, Lord, Wood & Van Suetendael, 10 N. Main St., West Hartford, engrs. CD 4/26.

Conn., Middletown—GARAGE, etc.—BA 11/30—State Pub. Wks. Comr., 165 Capitol Ave., Hartford, Conn., Proj. BI-I-166, garage, maintenance warehouse and fire house, Conn. State Hospital. $500,000. Plans deposit $15. Lester J. A. Julianelle, 241 Orange St., New Haven, archt. CD 3/30.

Mass., Norwood — HOUSING FOR THE ELDERLY — BA 12/7—Town Housing Auth., Municipal Bldg., State Aided Proj. 667-1, housing for the elderly. $500,000. Plans deposit $25. William Nelson Jacobs Assoc., 316 Stuart St., Boston, archts. CD 6/9.

BUILDINGS—SLC

N. H., Lebanon (West)—CHURCH—Holy Redeemer Church, Diocese Manchester, Chancery, 145 Lowell St., Manchester, soon lets contract church. $400,000. W. Brooke Fleck, Main St., Hanover, archt. Jennison Engineering, Inc., 95 College St., Burlington, Vt., engr.

HEAVY CONSTRUCTION—LB & CA

NEW HEMPSHIRE—State Dpt. P. Wks. & Hys., Concord, Bids opened 11/3,

Warner Bros., Inc., Sunderland, Mass., LB **$541,999** (8 bidders) hot b. conc. road way 3.066 mi. and 54 ft. rein.-conc. slab on steel beam bridge on Rte. 25, Benton-Haverhill, Grafton Co. CD 10/19.

Davison Constr. Co., Inc., 1306A Elm St., Manchester, N. H., LB $815,000 Base Bid, est. $725,000, Proj. 9-27-018-01, terminal bldg. and site work, Municipal Airport, MANCHESTER, N. H. City, City Hall, Manchester, N. H. Bids Nov. 3. CD 10/27.

† **National Constr. Co.**, 767 E. 3 St., South Boston, Mass., LB $527,917, est. $428,574, Schedule No. 4, combined bid GATR buildings, North Truro, Mass., Bucks Harbor, Me. and St. Albans, Vt., ENG-19-016-61-21, MASSACHUSETTS, MAINE and VERMONT. U. S. Eng., 424 Trapelo Rd., Waltham, Mass. Bids Nov. 3. CD 10/21, under Mass., North Truro; Me., Bucks Harbor, and Vt., St. Albans.

BUILDINGS—LB & CA

▲ **Turner Constr. Co.**, 38 Newbury St., Boston, Mass., CA $7,500,000, 10 story OFFICE addn., BOSTON, MASS., New England Mutual Life Insurance Co., 501 Boylston St., Boston, Mass. Bids Oct. 18. CD 10/3.

▲ **Aquadro & Cerruti, Inc.**, Texas Rd., Northampton, Mass., LB $1,162,326, SENIOR HIGH SCHOOL, LEE, MASS. Bids Nov. 7. CD 10/13.

H. Vincent Lindberger, 110 Lunenberg St., Fitchburg, Mass., CA $736,000, est. $700,000 (8 bidders), MANUFACTURING PLANT and OFFICE, near Fitchburg Airport, WESTMINSTER, MASS. Fitchburg Paper Co., 642 River St., Fitchburg, Mass. Bids Oct. 18. CD 10/18.

Leo P. Stramese, 272 Crescent St., Northampton, Mass., CA $521,000, Mass. Proj. 667-1 HOUSING FOR THE ELDERLY, Silver and Westfield Sts., WEST SPRINGFIELD, MASS. Town Housing Auth., 126 Park St., West Springfield Mass. Bids Oct. 26. CD 11/4, under LB.

▲ **John Zandonella**, 70 Chase St., Bridgeport, Conn., CA $1,166,400, STUDENT CENTER BLDG., Park Place, BRIDGEPORT, CONN. University of Bridgeport, Park Place, Bridgeport, Conn. Bids Oct. 18, awarded Nov. 3. CD 10/24, under LB.

John T. Knaus, 223 Dix Ave., New Britain, Conn., Owner Builds, $750,000, 75 HOUSES, Kensington Ave., NEW BRITAIN, CONN.

E. T. Murphy & Sons, Inc., Route 95, North Stonington, Conn., Owner Builds, $838,500, 65 HOUSES, Cedar Ridge, NORTH STONINGTON, CONN.

F. W. Brown Co., Yantic Flats, Yantic, Conn., CA $727,000, Proj. BI-K-104, research and clinical LABORATORY, Norwich State Hospital, NORWICH, CONN. State P. Wks. Comr., 165 Capitol Ave., Hartford, Conn. Bids Sept. 28. CD 10/3.

I. R. Stich Assocs., Inc., 611 New Park Ave., West Hartford, Conn., Owner Builds, $760,000, 76 HOUSES, Skinner Estates Extension, Skinner Rd., VERNON, CONN.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

November 23 New Jersey December 2 Pennsylvania

STREETS AND ROADS

December 2 Pennsylvania

▲ **New York and New Jersey**—BA 12/22—At office of Ch. Engr. Port of New York Auth., Rm. 1100, 111 Eight Ave., New York, Zone 11, Constr. GWB-190.009, constr. Section 3, of approach roadway sys. in New York City for lower level expansion of George Washington Bridge. Plans deposit $50. CD 8/15/57.

BUILDINGS—BA

▲ **N. J., Teaneck**—LIBRARY—BA 11/30—Fairleigh Dickinson University, 1000 River Rd., library. $1,000,000. Fellheimer & Wagner, 155 E. 42 St., New York, N. Y., archts. CD 8/30.

HEAVY CONSTRUCTION—LB & CA

T & T Contg. Corp., Glenwood Rd., Brooklyn 3, N. Y., CA $609,723, (1) storm water sewer Little Neck Parkway from 82 to 74 Aves. 80 Ave. from Little Neck Parkway to Union Turnpike and 251 St.; Union Turnpike from 251 St. to Commonwealth Blvd., reconstr. sanitary sewer in Little Neck Parkway, west side from Union Turnpike to point about 110 ft. northerly, Third Ward, Queens Boro, NEW YORK. President Queens Boro, Boro Hall, Rm. 228, 120-55 Queens Blvd., Kew Gardens 24, N. Y. Bids Oct. 6. Awarded Nov. 7. CD 10/11, under LB.

Hendrickson Bros., Inc., 63 No. Central Ave., Valley Stream, N. Y., CA $924,444, Contr. 535-N, imprv. Barnum Ave. (Merrick Ave.) from Hempstead-Farmingdale Turnpike northerly to Old Country Rd., Westbury and East Meadow, MINEOLA, N. Y. Dpt. P. Wks. Nassau Co., Old County Court House, Franklin Ave., Mineola, N. Y. Bids Oct 26, awarded Nov. 1. CD 10/28, under LB.

▲ **Nassau Constr. Co.**, 155 St. and Harlem River Dr., New York 32, N. Y., LB $1,900,102, (8 bidders), Contr. 809, reconstr. 155 St. Viaduct, Edgecombe Ave. to Macombs Pl., Manhattan Boro, NEW YORK, N. Y. President Manhattan Boro, Rm. 2034, Municipal Bldg., New York 7, N. Y. Bids Oct. 20. CD 10/3.

▲ **Slattery Contg. Corp.**, 46-36 54 Rd., Maspeth, N. Y., LB $8,408,790, (10 bidders), Contr. 3, abutments, towers and approaches at Broadway Bridge over Harlem River Ship Canal, Manhattan Boro, NEW YORK, N. Y. Dpt. P. Wks., Rm. 1800-L, Municipal Bldg., New York 7, N. Y. Bids Oct. 19. (Correction—low bidder). CD 10/24, under LB.

Miele-Salvatore, 90 Millburn Ave., Maplewood, N. J., LB $835,696, (9 bidders), Stage 1, 36,000 lin. ft. 8 in. vitr. cla. pipe; 11,000 lin. ft. 8 and 18 in. asbestos pipe; railroad crossing; 20,000 sq. ft. pavement restoration and 12,000 gravel access road, EMERSON, N. J. Emerson Boro, Boro Hall, Emerson, N. J. Bids Nov. 3. CD 10/11.

▲† **Arlington Asphalt Co.**, 1759 North Ridge Rd. Arlington, Va., and Corson & Gruman, 33rd and K St. N.W., Wash., D. C., CA $1,351,784, Schedules 1 and 2, taxiway and lighting at National Airport, WASH., D. C., Federal Aviation Agency, 16th and Constitution Ave., Wash., D. C. Bids Oct. 13. CD 10/18.

BUILDINGS—LB & CA

Zerbo Constr. Co., Inc., 1160 Utica Ave., Brooklyn 3, N. Y., CA Est. $650,000, 1 story SCHOOL, Skillman Ave. and Humboldt St., BROOKLYN, N. Y. St. Francis Paolo School, 219 Conselyea, Brooklyn. N. Y. Bids Sept. 15. CD 9/2.

▲ **Dominick Milone, Inc.**, 50 Merrick Rd., Rockville Centre, N. Y., CA Est. $2,500,000 St. Bernard's SCHOOL and AUDITORIUM, LEVITTOWN, N. Y. Diocesan Bldg. Comn., 253 Sunrise Hy., Rockville Centre, N. Y. Bids Oct. 11, awarded Oct. 21. CD 9/19.

▲ **Caristo Constr. Corp.**, 26 Court St., Brooklyn 1, N. Y., LB $1,625,000, (4 bidders), general contract PUBLIC SCHOOL 79, Madison Ave. and E. 117 St. LB $1,780,000, (4 bidders), general contract PUBLIC SCHOOL 181 (new Public School 20), Essex, Norfolk and Stanton Sts.; LB $3,340,000 combination PUBLIC SCHOOL 79 and PUBLIC SCHOOL 181, Manhattan Boro, NEW YORK, N. Y. Deputy Supt. Schools, Bureau Constr., 4 Floor, 42-15 Crescent St., Long Island City 1, N. Y. Bids Nov. 4. CD 10/24.

▲ **John T. Brady & Co., Inc.**, 606 W. 47 St., New York 36, N. Y., CA $5,542,000, general contract WORKHOUSE, Rikers Island, Bronx Boro, NEW YORK, N. Y. Dpt. P. Wks., Rm. 2200, Municipal Bldg., New York 7, N. Y. Grand total $8,125,770. Bids Sept. 28, awarded Nov. 7, CD 10/12, under LB; **The Rosenman Corp.**, 280 Broadway, New York 7, N. Y., CA $1,034,000, plumbing, Workhouse, Rikers Island, Bronx Boro (New York, N. Y.); **AFGO Engineering**, 475 Adelphi St., Brooklyn 38, N. Y., CA $725,770, heating and ventilating, Workhouse, Rikers Island, Bronx Boro (New York, N. Y.); **John G. Hellman Co., Inc.**, 507 E. 76 St., New York 21, N. Y., CA $824,000, electrical work, Workhouse, Rikers Island, Bronx Boro (New York, N. Y.).

▲ **Levco Constr. Corp.**, 114 Liberty St., New York 6, N. Y., CA $1,446,867, (8 bidders), general contract Spec. 16117-C, GYMNASIUM BLDG. 104, SCHOOL BLDGS. 105, 106, 107, 25-boy COTTAGES, Bldgs. 111, 112, 113, 114, 115, Otisville Training School for Boys, OTISVILLE, N. Y. State Dpt. P. Wks., State Office Bldg., Albany, N. Y. Bids Nov. 2. CD 10/11.

▲ **John B. Pike & Son, Inc.**, 1 Circle St., Rochester, N. Y., and **Robert F. Hyland & Sons, Inc.**, 375 Averill Ave., Rochester, N. Y., CA Est. $6,000,000, 18 story Midtown Plaza OFFICE, ROCHESTER, N. Y. Midtown Holdings Corp., 501 Clinton Bldg., Rochester, N. Y. Bohacket & Flynn, 311 Alexander St., Rochester, N. Y., and Victor Gruen Assocs., 2 W. 13 St., New York, N. Y., archts.

Sawyer & Dolfinger, Inc., 135 Haven Ave., Port Washington, N. Y., CA Est. $750,000, 2 story, no bsmnt. 80,000 sq. ft. WAREHOUSE and OFFICE, John St., New Cassel, WESTBURY, N. Y. King Cullen Food Markets, Inc., 178-02 Liberty Ave., Jamaica, N. Y. Scalera & Scalera, 2 Newbridge Rd., Hicksville, N. Y., archts.

▲ **Edward Wasser**, 4 N. Cadillac Dr., Somerville, N. J., Separate Contracts, $1,800,000, RESIDENTIAL DEVELOPMENT (100), Hopewell Valley Farms, HOPEWELL, N. J. Franklyn B. Spiezle, 11 N. Willow St., Trenton, N. J., archt.

▲ **Edward Wasser**, 4 N. Cadillac Dr., Somerville, N. J., Separate Contracts, $1,000,000, RESIDENTIAL DEVELOPMENT, Valley Village Development, HOPEWELL, N. J. Franklyn B. Spiezle, 11 N. Willow St., Trenton, N. J., archt.

Fountain Gardens, Rte. 10, Hanover, N. J., Owner Builds, $500,000, 2 story 50-unit APARTMENT, Sternberger Ave., LONG BRANCH, N. J. Bartlett & Khachadourian, 572 Bloomfield Ave., Bloomfield, N. J., archts.

Fred Brothertown, 185 Atlantic Ave., Hackensack, N. J., CA $712,200, EMPLOYEES' BLDG., Bergen Pines Hospital, PARAMUS, N. J. Bd. Freeholders, Bergen Co., Administration Bldg., Hackensack, N. J. CD 10/13, under LB.

Donald N. Armstrong, Cranbury, N. J., CA Over $400,000, two bldgs. HOME FOR CHRISTIAN SCIENTISTS OF ADVANCED YEARS, PRINCETON, N. J. Tenacre Foundation, Great Rd., Princeton, N. J. Bids Oct. 17. CD 10/13.

Walter E. Pruitt, Inc., Feasterville, Pa., Separate Contracts, $400,000, RESIDENTIAL DEVELOPMENT, Bucks Ridge Farms, FEASTERVILLE, PA.

Wynfair Corp., 2340 Pine Rd., Huntingdon Valley, Pa., Separate Contracts, $400,000, 3 APARTMENT HOUSES, N. York Rd., HATBORO, PA. Leon Lewis Levin, 1923 Manning St., Phila., Pa., archts.

▲ **A. P. Orleans**, 100 W. Rockland St., Phila., Pa., Separate Contracts, $2,000,000, RESIDENTIAL DEVELOPMENT, Ashbourne Rd., etc., HUNTINGDON VALLEY, PA.

Waverly Constr. Co., 1158 Easton Rd., Roslyn, Pa., CA Over $440,000, 2 APARTMENTS, UPPER DARBY, PA. Maurice Lichtenstein, 1614 E. Upsal St., Phila., Pa. Abraham R. Hyman, 912 Gilham St., Phila., Pa., archt.

▲ **The Lummus Co.**, 385 Madison Ave., New York N. Y., CA $11,000,000, CHEMICAL PLANT, CLAYMONT, DEL. Sun Oil Chemical Co., 1608 Walnut St., Phila., Pa. CD 12/15.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

December 2 Kentucky

STREETS AND ROADS

December 2 Kentucky

Fla., Clearwater—BA 11/21—Bd. Comrs. Pinellas Co., 305 Haven St., paving and drainage for runway and taxiway extensions and addn., also 42,500 ft. runway marking, St. Petersburg-Clearwater International Airport. $600,000. Harold Wilde & Assocs. c/o Max Battle Assocs. at the St. Petersburg-Clearwater Airport, Clearwater, engrs. CD 12/17/59.

La., Shreveport—BA 11/28—City Council, imprv. incinerator, Kings Hy. $400,000. CD 10/21.

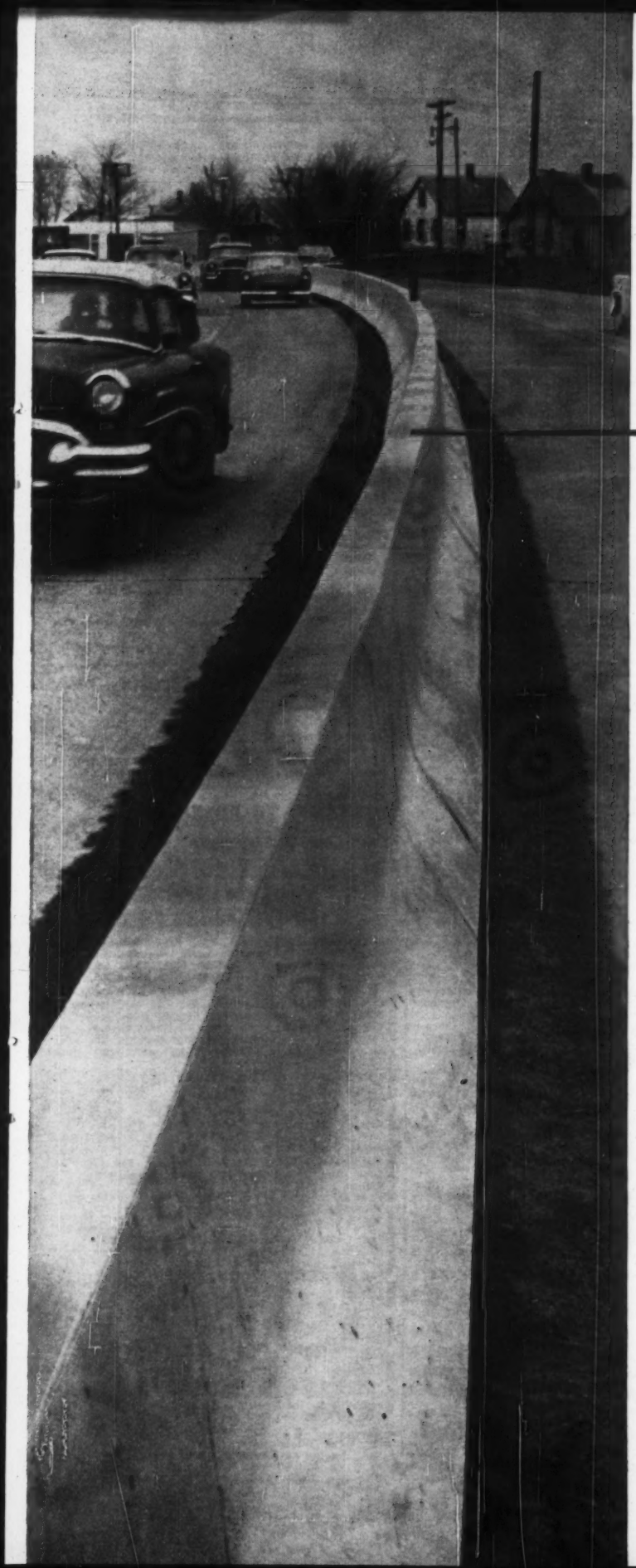
▲† **Louisiana**—BA 12/6—U. S. Eng., foot of Prytania St., New Orleans, Mississippi River Gulf Outlet, removal and disposal by hydraulic dredge 12,023,000 cu. yd. material and dredging cable trench vicinity of Bayou Ysclosky between Station 1235 plus 50 and Station 1561 plus 70, St. Bernard Parish. CIVENG-16-047-61-69. $2,000,000. Plans deposit $1. CD 9/20.

▲† **Fla., Cocoa**—PRECISION TRAJECTORY MEASUREMENT SYSTEM—BA 12/20—U. S. Eng., P. O. Box 4970, Jacksonville, precision trajectory measurement system, Air Force Missile Test Center, Patrick Air Force Base, ENG-08-123-61-30, $1,500,000. Extended date, CD 11/7.

BUILDINGS—BA

▲ **Ky., Covington**—SHOPPING CENTER—BA 11/22—Sanfred Corp., 7905 Hamilton Ave., Mt. Healthy, O., (selected list of bidders) first section, shopping

(Continued from page 144)



Unretouched photo of concrete barrier taken last spring following a severe winter.

White concrete center barriers: new safety for existing roads

This concrete center barrier on Route U.S. 46, New Jersey, has been successful in preventing head-on collisions on this heavily traveled approach to the George Washington Bridge. Cast in place with ATLAS WHITE portland cement, the barrier is 32 inches high, 24 inches wide at the base, with sloping sides. This design minimizes the possibility of vehicles mounting the barrier and helps shield oncoming headlights. This construction has become an important feature in New Jersey's program to build safety into existing highways where the installation of center islands is impractical.

ATLAS WHITE air-entraining portland cement was specified for the concrete in this installation because its uniform whiteness provided contrast between barrier and the darker pavement. And at night, this contrast is even more apparent. In addition, the air-entraining property of this cement also provides a more durable concrete that resists the destructive effects of freezing-thawing weather and the application of deicing salts. For more information on white portland cement, write Universal Atlas, 100 Park Avenue, New York 17, New York.

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United States Steel

USS

(Continued from page 142)

center, incl. store for Albers Supermarkets, 38 and Winston Ave. $1,900,000. R. W. Wallace & Assoc., 1607 Asmann Ave., Cincinnati, O., archts. CD 7/27.

Tenn., Nashville—PLANT—BA 11/29—Western Electric Co., Inc., 165 Broadway, New York, N. Y., (selected list of bidders), 128,000 sq. ft. mfg. plant addn. Over $750,000. Lockwood Greene Engineers, Inc., 41 E. 42nd St., New York, N. Y., archt. CD 7/11.

† **Ala., Huntsville**—GUARD HOUSE, CONTROL, etc.—BA 12/1—U. S. Eng., 2301 Grant St., Mobile, guard house, control building, and road extension, Redstone Arsenal, $600,000. CD 7/22.

▲ **Ga., Cartersville**—HOSPITAL—BA 12/6—Bartow Co. Hospital Auth., Courthouse, hospital. $1,000,000. Plans deposit $50. Gregson & Assocs., Montgage Guarantee Bldg., Atlanta, archts. CD 11/3.

HEAVY CONSTRUCTION—LB & CA

▲ **Harrison Wright Co.**, 116 W. 3, Charlotte, N. C., CA $1,012,000, high pressure gas mains, Newport News, Hampton Co., VIRGINIA. Virginia Electric & Power Co., 700 E. Franklin St., Richmond, Va. Stone & Webster Eng. Co., 1403 Roseneath Rd., Richmond, Va., engr.

Luck Corp., 3600 Douglasdale Rd., Richmond, Va., LB $404,595 (9 bidders), North Richmond Rd. combined sewer, RICHMOND, VA. Dpt. P. Wks., 213 N. Governor St., Richmond, Va. CD 10/17.

† **Robert E. Lee & Reynolds & Smith**, Box 428, Moore Haven, Fla., CA $959,383, constructing Levees 50 and 61, Florida Flood Control Proj. Central and Southern, CIVENG-08-123-61-15, FLORIDA. U. S. Eng., P.O. Box 4970, Jacksonville, Fla. Bids Oct. 6, awarded Nov. 4. CD 10/13.

BUILDINGS—LB & CA

▲ **Grigg & Kornblau**, 710 W. Cary St., Richmond, Va., CA Est. $1,000,000, Circle SHOPPING CENTER, RICHMOND, VA. Davis Distributing Co., 710 W. Cary St., Richmond, Va. CD 6/2, under CA.

▲ **Seakay Corp.**, 7608 Horsepen Rd., Richmond, Va., Separate Contracts, $6,000,000, 154-HOUSES subdivision, near RICHMOND, VA. CD 3/14.

Barger Constr. Co., P.O. Box 30, Mooresville, N. C., LB $512,700, 64,000 sq. ft. Surry Central HIGH SCHOOL, DOBSON, N. C. Surry County Bd. Educ., Courthouse, Dobson, N. C. Bids Nov. 3. CD 10/19.

Fred S. Conrad Constr. Co., P. O. Box 2427, Jacksonville, Fla., CA Est. $500,000, MOTOR HOTEL, DAYTONA BEACH, FLA. Atlantic Boulevard Motel, c/o Scheel & Logan, archts., 702 Hendricks Ave., Jacksonville, Fla. CD 10/7.

Deuschle Constr. Co., 100 SW 5th Court, Pompano Beach, Fla., Owner Builds, $500,000, 7 story, 150 x 210 ft. OFFICE, FORT LAUDERDALE, FLA.

H. F. DiFrancesco Constr. Co., Inc., 5763 Sunset Dr. S., Miami, Fla., CA $554,000, PARKING GARAGE "V", Biscayne Blvd. to NE 3rd Ave. between NE 1st St. and 2nd St., MIAMI, FLA. City-Off Street Parking Bd., 3342 Pan American Dr., Miami, Fla. Rader & Assocs., 100 South Biscayne Blvd., Miami, Fla., archts. and engrs. Awarded Oct. 3. CD 10/20, under LB.

▲ **The Austin Company**, 16112 Euclid St., Cleveland, O., CA approx. $2,000,000, Montgomery Ward STORE BLDG., W. Colonial Dr., ORLANDO, FLA. Montgomery Ward, c/o Betz & Bankemper & Assocs., archts., 319 Scott St., Covington, Ky. Albert E. O'Neal, 2626 Edgewater Dr., Orlando, Fla., engr. CD 11/4.

Waters & Steward Constr. Co., Box 1602, Orlando, Fla., LB $565,565, construct Orange County COURTHOUSE ALTERATIONS, ORLANDO, FLA. Bd. Comrs. Orange County, Courthouse Annex, Orlando, Fla. James Gamble Rogers Lovelock & Fritz, 145 Lincoln Ave., Winter Park, Fla., archts. James B. King, 56 Park Lake, Orlando, Fla., assoc. archt. CD 3/26.

Brokers Development Co., 1800-A Calmes St., Mobile, Ala., Owner Builds, $600,000, SHOPPING CENTER, MOBILE, ALA. John Mykolyk, 637 Antoine St., New Orleans, La., archt. CD 9/15.

Cooper Bros. Constr. Co., Box 705, Selma, Ala., LB Est. $500,000, two story BANK, SELMA, ALA. City National Bank, Selma, Ala. Warren, Knight & Davis, Protective Life Bldg., Birmingham, Ala., archts.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES
December 7 Michigan

STREETS AND ROADS
November 22 Ohio November 30, December 7 Michigan

† **Michigan**—BA 12/6—U. S. Eng., 1101 Washington Blvd., Detroit, Zone 26, dredging St. Clair River, St. Clair to Marine City, CIVENG-20-064-61-23. Under $1,000,000. Plans deposit $1.10. CD 9/20.

O., Athens — DORMITORY — BA 12/6 — Dpt. P. Wks., State Dpts. Bldg., Columbus, Zone 15, first unit West Green Dormitory. Plans deposit $50. Potter, Tyler, Martin & Roth, 128 E. 6th St., Cincinnati, Zone 2, archts. Ziel-Blossom & Assocs., 128 E. 6th St., Cincinnati, engrs.

▲ **Ill., Downers Grove** — BA 12/12 — Village, Village Hall, storm sewers, St. Joe Creek and Montgomery Ave. $2,260,000. CD 7/14.

▲ **O., Cleveland**—BA 12/15—Bd. Comrs. Cuyahoga Co., 451 County Admin. Bldg., 1219 Ontario St., Zone 13, Rocky River Sewer Plant expansion, Contract 1, outfall sewer, $312,900; Contract 2, treatment plant, $3,235,000; Contract 3, plumbing, $24,000; Contract 5, heating and ventilating, $35,000; Contract No. 5, electrical, $126,000. Plans deposit $75. CD 5/29.

BUILDINGS—BA

Ill., St. Charles—SCHOOL—BA 11/22—Community Unit School Dist. No. 303, Junior High School addn. $662,000. Nichol & Nicol, 23 E. Jackson Blvd., Chicago, Zone 4, archts. CD 10/26.

O., Cleveland — HOSPITAL — BA 11/26 — Cuyahoga Co. Hospital Bd. Trustees, 3901 Ireland Dr., Warrensville Twp., Bldg. 7 Highland View Hospital addn., alterations, Warrensville. $800,000. Plans deposit $50. George S. Rider Co., 1024 Terminal Tower, Zone 13, archt. CD 11/9.

O., Milford—SCHOOL—BA 11/29—Milford Bd. Educ., Milford, elementary school. $560,000. Plans deposit $50. Sullivan, Isaacs, Sullivan, 1800 Reading Rd., Reading, archts. CD 7/15.

▲ **Ill., Chicago**—HOMES—BA 12/13—Chicago Housing Auth., 608 S. Dearborn St., Housing Proj. 230-11, 287 unit William Greene Homes. $3,400,000. Extended date. Pace & Assocs., 53 W. Jackson Blvd., Zone 4, archts. CD 10/7.

BUILDINGS—SLC

Tex., San Antonio—LABORATORY—Southwest Research Institute, 8500 Culebra Rd., soon lets contract laboratory. Approx. $500,000. Atlee B. & Rob. M. Ayers, 342 W. Woodlawn Ave., archts. Beretta, Greenslade & Associates, 1927 N. St. Mary St., and W. E. Simpson Co., 2122 Natl. Bank Commerce Bldg., and Martin E. Staley, Chandler Bldg., engrs. CD 9/16.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—Dpt. Hys., State Depts. Bldg., Columbus, Zone 15, Bids opened 10/25.

O.—**Harry Miller Excavating Co. and Central States Constr. Co.**, P.O. Box No. 54, Suffield, O., LB $6,006,503, est. $6,591,000 (8 bidders), Type T 71, structures 6.697 mi. State Rte. 1-15.91, 0.00, I 271-6 (5)260, I 90-1(20)18, Villages of Mayfield and Highland Heights and City of Mayfield Heights, Village of Willoughby Hills and City of Wickliffe, Proj. 721, Cuyahoga and Lake Counties;

O.—**The Horvitz Co.**, 4375 E. 146th St., Cleveland, O., LB $4,368,774, est. $4,774,400 (4 bidders), Type T 71, structures 2.48 mi. State Rte. 2-26.04, I 90-1 (17)13, City of Euclid, Proj. 722, Cuyahoga Co.;

O.—**Herkner Contg. Co. and Herkner Constr. Co.**, 5450 Hamilton Ave., Cleveland, O., LB $3,067,301, est. $3,551,000 (10 bidders), Type T 71, structures 5.883 mi. US Rte. 6-11.30, F-FG-1042(7), Village of Huron, Proj. 723, Erie Co.;

O.—**John Hill Contg. Co.**, 241 N. Plymouth St., Lexington, O., LB $320,981, est. $405,000 (9 bidders), Type T 71, structures 0.075 mi. C.R. No. 51, S-SG-1251(3), Proj. 724, Lorain Co.;

O.—**Frantz Bros., Inc.**, 313 E. Court St., Sidney, O., LB $96,775, est. $111,400 (4 bidders), Type T 35 on B 19, structure 0.569 mi., State Rte. 721-3.71, S 243(7), Proj. 725, Miami Co.;

O.—**Don S. Cisle Contractor, Inc.**, 504 First National Bank Bldg., Hamilton, O., LB $615,153, est. $682,000 (5 bidders), Type T 35, 5.234 mi. US Rte. 27 (17.70-22.87 Villages of Oxford and College Corner), Proj. 726, Butler Co.;

O.—**Rafferty & Murphy Constr. Co., Inc.**, 6951 Miami Hills Dr., Cincinnati, O., LB $146,103, est. $174,000 (6 bidders, Type T 35 on aggreg. base, structure, 0.753 mi. State Rte. 727-2.50, Proj. 727, Clermont Co.;

O.—**Carl Myers & Co., Inc.**, 2257 Wickliffe Rd., Columbus, O., LB $89,429, est. $102,500 (8 bidders), Type T 35 on B 19 0.596 mi. State Rte. 204-12.98, Proj. 730, Perry Co.;

O.—**The W. M. Brode Co.**, 100 Elizabeth St., Newcomerstown, O., LB $309,476, est. $361,400 (11 bidders), Type T35 on B 219 and structure, 0.577 mi. US Rte. 21-7.48, Village of Newcomerstown, Proj. 731, Tuscarawas Co. CD 10/5.

Central Pipeline Co., corner Stewart and Bible Rds., Lima, O., CA Est. $414,000, 9½ mi. gas pipe line from Fredericksburg to Malvern, Carroll Co., OHIO. Ohio Fuel Gas Corp., 99 N. Front St., Columbus, O.

Arthur B. Nelson Co., 1240 E. 74th St., Chicago, Ill., CA $410,000, 80x100 ft. 80 x 170 ft. railroad dock and freight office, 3501 Pershing Rd., CHICAGO, ILL. Atchison, Topeka & Santa Fe R. R., 80 E. Jackson Blvd., Chicago 4, Ill. T. C. Buss Jr. & Assocs., 10827 S. Western Ave., Chicago, Ill., archts. Awarded Nov. 4.

BUILDINGS—LB & CA

▲ **Knowlton Constr. Co.**, 1133 W. Columbus St., Bellefontaine, O., LB $1,497,300, HIGH SCHOOL, for 1400 students, ASHLAND, O. Bd. Educ., Ashland, O. CD 10/6.

Frank Messer & Son, Inc., 4612 Paddock Rd., Cincinnati, O., CA $679,700, Kettering LABORATORY WING, CINCINNATI, O. University of Cincinnati, Burnet Woods Park, Cincinnati, O. Bids Sept. 8, awarded Nov. 4. CD 9/20, under LB.

▲ **Virginia Homes, Inc.**, 655 N. Cassady Ave., Columbus, O. Owner Builds, $6,800,000, $4,500,000 first year, (2 yr. program) 500 HOMES, Millbrook Development, COLUMBUS, O. CD 10/31.

Ferro Slag Processing Co., Butler, Pa., Owner Builds, $750,000, dust free slag crushing PLANT to handle material from National Tube Div., U. S. Steel Co., Lorain Plant, Sheffield, LORAIN, O. CD 11/18/59, under National Tube Div., U. S. Steel Corp., E. 28th St. and Pearl Ave., Lorain, O., as owner.

Conrad Seyferth Constr. Co., 1458 Anderson Ferry Rd., Cincinnati, O., LB $401,600, Heritage Hill ELEMENTARY SCHOOL, SHARONVILLE, O. Princeton School Dist., Reading Rd., Sharonville, O. Bids Nov. 3. CD 10/24.

Van Deilen Homes, Lambertville, Mich., CA $717,458, forty-seven 1 family public HOUSING units, TOLEDO, O. Toledo Metropolitan Housing Authority, 400 Nebraska St., Toledo, O. CD 10/3, under LB.

Barmac Constr. Co., Chester, Ill., CA $533,900, 44-bed brick concrete county HOSPITAL, CHESTER, ILL. Randolph County Hospital, Courthouse, Chester, Ill. Bids Aug. 18. CD 9/6, under LB.

▲ **Gust K. Newberg Constr. Co.**, 2040 N. Ashland Ave., Chicago, Ill., CA $14,487,000, est. $15,100,000, Housing Proj. 2-37, Stage II, 1,261 unit Robert R. Taylor HOMES, CHICAGO, ILL. Chicago Housing Auth., 608 S. Dearborn St., Chicago 5, Ill. Bids Oct. 18, awarded Oct. 26. CD 10/21, under LB.

▲ **Power Constr. Co.**, 125 S. Marion Ave., Oak Park, Ill., CA $3,485,600, 2 story Quigley Preparatory SCHOOL, CHICAGO, ILL. Catholic Bishop of Chicago, 719 N. Wabash Ave., Chicago, Ill. CD 11/1, under LB.

▲ **Gust K. Newberg Constr. Co.**, 2040 Ashland Ave., Chicago, Ill., LB $7,186,000, (5 bidders) Housing Proj. 2-37, Stage 1, Robert R. Taylor HOMES, CHICAGO, ILL. Chicago Housing Auth., 608 S. Dearborn St., Chicago 5, Ill. Bids Nov. 8. CD 10/7.

▲ **George Sollitt Constr. Co.**, 109 N. Dearborn St., Chicago 2, Ill., CA Approx. $5,500,000, 5 story Childrens Memorial HOSPITAL WING addn., 707 W. Fullerton Ave., CHICAGO, ILL. Childrens Memorial Hospital Development Proj., 104 S. Michigan Ave., Chicago 3, Ill. Bids Sept. 20. CD 8/25.

▲ **Lamp Constr. Co.**, 112 Division St., Elgin, Ill., LB $1,710,000, (6 bidders), general contract Elgin West Side HIGH SCHOOL, ELGIN, ILL. Bd. Educ., School Dist. No. 46, 4 S. Gifford St., Elgin, Ill. Bids Oct. 19. CD 10/12.

▲ **Fred Tetelbaum Constr. Co.**, 5526 N. Kedzie St., Chicago, Ill., CA $1,500,000, 8 story APARTMENT, 1501 N. Maple Ave., EVANSTON, ILL. Lake Forest National Bank, Trustee, Lake Forest, Ill. Richard Barancik, 150 N. Michigan St., Chicago 1, Ill., archt.

▲† **General Services Admin., Public Building Service**, Rm. 575, U. S. Courthouse, 219 S. Clark St., Chicago, Ill. rejected bids Oct. 10, MAXIMUM SECURITY PENITENTIARY for Bureau of Prisons, MARION, ILL. Hellmuth, Obata & Kassabaum, Inc., 315 N. 10th St., St. Louis 1, Mo., archts. Will re-advertise.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES
December 13 South Dakota

STREETS AND ROADS
December 13 South Dakota

† **Arkansas**—BA 11/29—U. S. Eng., P. O. Box 867, Little Rock, Ark., Morrilton cut-off revetment and dikes, River Mile 215.4 to River Mile 210.2, Ark. River Watershed, CIVENG-03-050-61-23. $400,000. CD 9/30/59.

Tex., El Paso—FIELD HOUSE, etc.—BA 11/30—University of Texas, Board of Regents, 104 Main Bld, Austin, field house and gym for Texas Western College. $702,000. Plans deposit $50. Monroe, Licht & Higgins, 827 E. Yandell Drive, archts.-engrs. CD 8/24.

▲† **Kansas**—BA On Or About 12/15—U. S. Eng., 1800 Federal Office Bldg., Kansas City 6, Mo., levee embankment, pumping plant, pressure relief wells, 60 in. CMP diversion structure, inlet structure, outlet structure, gatewell, stone protection, surfacing, etc., Blue Rapids, CIVENG-23-028-61-29. $1,000,000. Plans deposit $10.

† **Oklahoma**—BA About 12/15—U. S. Eng., Box 61, Tulsa, Zone 1, emergency bank stab., channel rectification, River Mile 391.2 to River Mile 395.0, Short Mountain to Wilson's Rock, Arkansas River, CIVENG-34-066-61-26. $800,000. Bids Oct. 10 rejected. CD 10/18, under LB.

† **Tex., Lackland Air Force Base**—AIR CONDITIONING—BA About 12/15—U. S. Eng., 606 Santa Fe Bldg., Galveston, air conditioning academic classrooms in four bldgs., ENG-41-243-61-12. $500,000. CD 7/26.

† **Texas**—BA About 12/15—U. S. Eng., P. O. Box 1229, Galveston, dredging Bay Approach Channel and Corpus Christi Turning Basin, incl. channel at Bascule Bridge, Nueces Co., ENG-41-243-61-29. $500,000. CD 9/30/59.

▲† **Ark., Little Rock**—BA 12/20—TITAN MISSILE LAUNCHER FACILITIES—U. S. Eng., Ballistic Missile Construction Office, 9610 Bellanca Ave., Los Angeles, Calif., 18 titan missile launcher facilities, incl. silos, control center tunnel, etc., near Little Rock Air Force Base. $30,000,000. CD 10/21.

BUILDINGS—BA

† **Kan., Topeka**—ARMED FORCES RESERVE CENTER—BA 12/6—Dist. P. Wks. Office, Ninth Naval Dist., Bldg. 1-A, Great Lakes, Ill., 1 and 2 story, 10 x

206 ft. concrete fdn., frame and floor slabs, concrete block walls, etc., Armer Forces Reserve Center, Naval and Marine Corps Addn.; Spec. No. 31019/60. $250,000-$500,000. Plans deposit $30.

▲ **Tex., Corpus Christi**—PLANT, etc.—Bids Asked—Suntide Refining Co. (Subsidiary of Sunray Mid-Continent Oil Co.), Viola Rd. (selected list of bidders), styrene plant, 60 mil. lbs. annually, $4,750,000; equipment repair shop, $175,000. CD 8/7.

HEAVY CONSTRUCTION—LB & CA

▲ **Donna Irrigation Dist. No. 1,** Hidalgo Co., Donna, Tex., Owner Builds, $560,000, concrete lined canals; $700,000, replacing irrigation ditching with pipe, DONNA, TEX.

Elm Fork Constr. Co., P. O. Box 13186, Dallas, Tex., LB $609,145, (7 bidders), water distr. system, 2 storage tanks, pump station, KILLEEN, TEX. City, City Hall, Killeen, Tex. Bernard Johnson & Associates, 4926 Travis St., Houston, Tex., engrs. Bids Nov. 1. CD 6/9.

Claude Everett Constr. Co., P. O. Box 25082, Houston, Tex., CA $594,835, erosion protection facilities, area of Point Comfort, Port O'Connor, Six Mile Park, Olivia and Seadrift, PORT LAVACA, TEX. Calhoun County, Comrs. Court, Courthouse, Port Lavaca, Tex. Lockwood, Andrews & Newman, P. O. Box 175, Victoria, Tex., engrs. CD 10/31, under LB.

† **COLORADO**—Bureau P. Rds., Room 242, Bldg. 40, Denver Federal Center, Denver,

Rocky Mountain Constr. Co., Box 1033, Missoula, Mont., CA $535,121, est. $641,710, 3.246 mi. Forest Hy. Proj. 13-E, Mesa Co., COLORADO. Bids Oct. 11, awarded Oct. 23. CD 11/17.

† **H. B. Zachry Co. Constr. Div.,** P. O. Box 10188, San Antonio, Tex., CA $847,651, runway, primary, instrument, replacement, Cannon Air Force Base, ENG-29-005-61-28B, CLOVIS, N. M. U. S. Eng., Box 1538, Albuquerque, N. M. Bids Oct. 20. CD 10/26, under LB.

BUILDINGS—LB & CA

G. E. Carlstrom Constr. Co., Mankato, Minn., CA $513,740, INDUSTRIAL ARTS and CLASSROOM, Mankato State College, MANKATO, MINN. State Dpt. Admin., 19 State Capitol, St. Paul, Minn. Bids Oct. 27. CD 11/3, under LB.

E. M. Ganley Co., 2922 Oakland Ave., Minneapolis, Minn., CA $500,000, 1 story, 23,000 sq. ft. HEADQUARTERS and RESEARCH BLDG., 2199 N. Pascal St., ROSEVILLE, MINN. De Luxe Check Printers, Inc., 530 North Wheeler St., St. Paul, Minn. Perkins & Will, 309 W. Jackson Blvd., Chicago, Ill., archts.

▲ **Woermann Constr. Co.,** 7120 Manchester Ave., St. Louis 17, Mo., CA Est. $1,082,000, 1 story, 86,000 sq. ft. masonry, steel, concrete WAREHOUSE, 20,160 sq. ft. 24 berth trucks outside loading dock, 23,040 sq. ft. salvage shop, 14,400 sq. ft. transformer shop, 1 story administration office, etc., Dorsett Rd., MARYLAND HEIGHTS, MO. Union Electric Co., 315 N. 12 Blvd., St. Louis 1, Mo., Bids Oct. 21, awarded Nov. 3. CD 10/12.

Wayne Burns, c/o Ed Nicholson & Associates, archts., 5511 San Pedro Ave., San Antonio, Tex., Owner Builds, $400,000, 29 DWELLINGS, AUSTIN, TEX. Ed Nicholson & Associates, 5511 San Pedro Ave., San Antonio, Tex., engrs. CD 10/31.

Walker Constr. Co., Box 13374, Fort Worth, Tex., CA $546,875, 1st unit, Vivian Field JUNIOR HIGH SCHOOL, CARROLLTON, TEX. Carrollton Ind. School Dist., Bd. of Trustees, Carrollton, Tex. CD 10/10, under LB.

Wellman & Lord Engineering Co., Box 2436, Lakeland, Fla., CA Est. $715,000, paint mfg. PLANT and OFFICE, CARROLLTON, TEX. Glidden Paint Co., 5420 Palms Center, Houston, Tex. Bids Oct. 14. CD 11/2, under LB.

Bishop College, 301 N. Bishop St., Marshall, Tex., Owner Builds, $425,000, 2 story, EDUCATIONAL, (gym and classrooms), concrete fdn., Simpson St., Stewart Rd., DALLAS, TEX. Wyatt C. Hedrick, 904 Fort Worth Ave., Dallas, Tex., archt.-engr. CD 9/21.

Danna Constr. Co., 5526 Dyer Ave., Dallas, Tex., Owner Builds, $433,750, 25 DWELLINGS, off Belt Line Rd., DALLAS, TEX. CD 6/1.

▲ **Grinnan Development Co.,** c/o 5533 Dyer St., Dallas, Tex., Owner Builds, $1,900,000, 106 units APARTMENT, Turtle Creek, DALLAS, TEX. CD 2/20/59, c/o Warren Hall, archt., 5533 Dyer St., Dallas, Tex., as owner.

▲ **Inge & Hayman,** 2115 Butler St., Dallas, Tex., CA $1,900,000, remodeling, impry. HOSPITAL, DALLAS, TEX. Baylor Hospital, 3500 Gaston Ave., Dallas, Tex. Thomas, Jameson & Merrill, 820 N. Harwood St., Dallas, Tex., archts. Zumwalt & Vinther, Merc. Dallas Bld., Dallas, Tex., engrs. CD 3/5/57.

J. L. Williams & Co., Adolphus Tower, Dallas, Tex., Owner Builds, $750,000, PAINT MFG. PLANT, Brooks Hollow Industrial Dist., DALLAS, TEX. U. S. Gypsum Co., lessee.

▲ **Wynnewood Village,** 201 Wynnewood Prof. Bld., Dallas, Tex., Owner Builds, $2,500,000, DEPARTMENT STORE, Zangs and Illinois Aves., DALLAS, TEX. Montgomery Ward, lessee. Williams & Reeves, 3400 University Blvd., Dallas, Tex., archts. CD 8/5.

Fox & Jacobs Constr. Co., Inc., 4926 Greenville Ave., Dallas, Tex., Owner Builds, $414,000, 29 DWELLINGS, GARLAND, TEX.

▲ **R. B. Butler, Inc.,** P.O. Box 471, Bryan, Tex., CA $1,213,062, 11 bldgs., 1 story, 118,563 sq. ft. masonry, concrete, steel, Mountain View SCHOOL for delinquent boys, GATESVILLE, TEX. Texas Youth Council, Bd. Controls, Austin, Tex. Bids Oct. 18, awarded Nov. 1. CD 10/25, under LB.

▲ **Bob Salter, Builder,** 6702 Telephone Rd., Houston, Tex., Owner Builds, $1,750,000, 140 unit, HOTEL and APARTMENTS, Skylane Inn, HOUSTON, TEX. CD 10/21.

▲ **T. E. Webster, Contractor,** 7127 Neff St., Houston, Tex., Owner Builds, $2,000,000, 100 brick frame DWELLINGS, Sect. 5, "Sharpstown", HOUSTON, TEX.

Avery Mays Co., Contractors, 7917 Preston Park Drive, Dallas, Tex., CA $921,700, HIGH SCHOOL, PLANO, TEX. Plano Independent School Dist., Plano, Tex. CD 11/2, under LB.

Davis & Chandler Constr. Co., P. O. Box 8272, San Antonio, Tex., LB $456,152, (9 bidders), LABORATORY, SAN ANTONIO, TEX. Southwest Research Institute, 8500 Culebra Rd., San Antonio, Tex. Bids Nov. 1. CD 11/10.

Herring-Price Lumber Co. c/o 7007 San Pedro Ave., San Antonio, Tex., CA $600,000, MOTOR HOTEL, and 2 level PARKING GARAGE, SAN ANTONIO, TEX. Pan Tex Hotel Corp., c/o 7007 San Pedro Ave., San Antonio, Tex. CD 5/5.

Harvey Stitt, 6129 Pecos, Denver, Colo., CA $400,000, North Star DRIVE-IN THEATER, 1,600 car capacity, 134 x 60 ft. screen in Northglenn, THORNTON, COLO., Wolfberg Theaters, 1631 Glenarm Place, Denver, Colo.

▲ **Writer Brothers,** 1730 South Colorado Blvd., Denver, Colo., Owner Builds, $1,000,000, three story annex to WRITER'S MANOR to be called Writer's Manor East, 95 executive suites, each with balcony with swimming pool DENVER, COLO.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

November 29 Utah

STREETS AND ROADS

November 29 Washington
November 30 California
December 1, California, Hawaii
December 20 California

▲ **Alaska**—BA 11/29—Chugach Electric Assn., 8 and Gambell Sts., Anchorage, 115 kv transmission line over or around Turnagain Arm from Cooper Lake Hydro Proj. Over $1,000,000. North Pacific Consultants, Box 3008, Eastchester Branch, Anchorage, Alaska, engrs. CD 11/2, under LB.

▲† **California**—BA 12/7—U. S. Eng., 751 South Figueroa St., Los Angeles, constr. East Twin and Warm Creeks Channel, Marshall Blvd. to Baseline St., Santa Ana River Basin, CIVENG-04-353-861-8. $1,400,000. CD 9/20.

▲ **Calif., San Diego**—WAREHOUSE "B"—BA 12/13—City, Purchasing Agent, Rm. 161, Civic Center, 1600 Pacific Hy., Zone 1, Warehouse "B", 10th Ave. Marine Terminal. Over $1,000,000. Plans deposit $25. CD 6/13.

▲ **CALIFORNIA**—BA 12/22—State Div. Hys., 120 South Spring St., Los Angeles,

Orange Co.—grading, paving to constr. 4.2 mi. 4 lane freeway on Newport Freeway (State Sign Rte. 55) between just south of Chapman Ave. in Orange and Riverside Freeway to North, incl. 11 traffic separation structures and bridges. $9,255,000. CD 11/13/59.

† **Calif., Fort Ord**—EM SERVICE CLUB W/BRANCH LIBRARY—BA About 12/22—U. S. Eng., 180 New Montgomery St., San Francisco, EM service club W/branch library, ENG-04-203-61-157. $500,000. Plans deposit $4.40. CD 9/8/58.

BUILDINGS—BA

Calif., Los Angeles—SCHOOL—BA 11/29—Los Angeles Bd. Educ., 1425 S. San Pedro St., 2 story, concrete block 107th St. school. $915,000. Faxon, Gruys & Sayler, 8440 Melrose Ave., archts. CD 1/4.

Calif., Santa Barbara—LECTURE HALL—BA 11/29—Bd. Regents University of California, Goleta, Santa Barbara, rein.-con. block lecture hall, Goleta Campus. $460,000. Plans deposit $125. Charles Luckman & Assoc., 9220 Sunset Blvd., Los Angeles, archts.

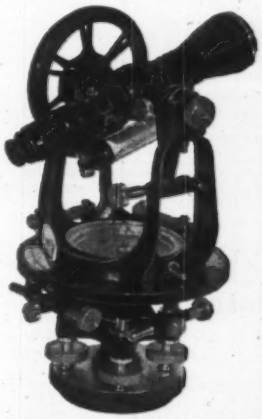
BUILDINGS—SLC

▲ **Calif., San Fernando** — PLANT — Welton Becket & Assocs., archts., 10000 Santa Monica Blvd., Los Angeles, soon lets contract manufacturing plant for Bendix Corp., 15825 Roxford St. $2,000,000. CD 9/8.

HEAVY CONSTRUCTION—LB & CA

IDAHO—State Hy. Dpt., Boise, Bids opened 11/1,

Idaho—**Frank G. Bauine, Inc.,** Yardley, Wash., LB $683,185, (6 bidders), roadway, drainage, structures, roadmix bit. surf. 5.816 mi. State Hy. No. 7, Latah Co.;



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Idaho—**Hoops Constr. Co.**, Twin Falls, Idaho, LB **$254,888**, (2 bidders), roadway, drainage structures, plantmix bit. surf. 2.205 mi. State Rte. 45, Canyon Co. CD 10/25.

† **Murray J. Shiff**, P.O. Box 1190, Tucson, Ariz., LB **$882,100**, est. $931,900 (13 bidders), aircraft maintenance hangars, MCASS, Spec. 30350, YUMA, ARIZ. Pub. Wks. Office 11th Naval Dist., 1220 Pacific Hy., San Diego, Calif. CD 9/30.

▲ **NEVADA**—State Dpt. Hys., State Hy. Bldg., Carson City,

Wells Cargo, Inc., Las Vegas, Nev., CA **$2,074,586** (9 bidders), constr. portion Interstate Hy. Sys. Int. Rte. 80 from 15 mi. southwest to Churchill-Pershing CITY, UTAH. Church of Jesus Christ of Latter Day County line, 14.859 mi., Churchill Co. Bids Nov. 3. CD 10/19.

▲ **WASHINGTON** — State Hy. Comn., Transportation Bldg., Olympia

Puget Sound Bridge & Drydock Co., 2929 16th Ave. S.W., Seattle, Wash., CA **$2,220,201**, two rein.-con. box girder bridges over Latah Creek 0.231 mi. Primary State Hy. 2, Spokane Co. Bids Nov. 1. CD 11/4, under LB.

† **WASHINGTON**—Bureau P. Rds., Dpt. Commerce, Morgan Bldg., Portland, Ore.,

A. Decoria, Box 241, Auburn, Wash., CA **$761,990**, grading, constr. two bridges, 2.506 mi. Cascade Wagon Rd., Mount Baker National Forest, Whatcom Co. Bids Oct. 28. CD 11/7, under LB.

Northwest Constr. Co., 3950 6th Ave. N.W., Seattle 7, Wash., CA **$725,006**, paving streets, area between Roosevelt Way and Bothell Way, SEATTLE, WASH. City County City Bldg., Seattle 4, Wash. Bids Oct. 19. CD 7/14.

† **OREGON**—Bureau P. Rds., Morgan Bldg., Portland,

F. L. Somers, Box 668, Medford, Ore., CA **$882,399** (15 bidders), grading 11.802 mi. Lake of the Woods Hy., Jackson Co. Bids Oct. 19. CD 10/26, under LB.

† **OREGON**—Bureau P. Rds., Morgan Bldg., Portland, Bids opened 11/3,

M. J. Brassfield Co. & B. F. Constr. Co., 972 Imperial Dr., Salem, Ore., LB **$514,325**, est. $430,534 (2 bidders), widen, surf. 6.254 mi. Annie Springs and Park Headquarters Rds., Crater Lake, Inv. 3-A7 and 4-A3, B3. CD 10/19.

CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles,

Oberg Constr. Co., 19424 Plummer St., Northridge, Calif., CA **$619,135**, grading, surf. FAS Co. Rd. 860 (Grand Ave.) as 4 lane divided hy. from Rowland Ave. to Toni Dr. and bridge over Walnut Creek, Los Angeles Co. Bids Oct. 6, awarded Nov. 3. CD 10/12, under LB.

† **E. A. Girard**, P. O. Box 95, Twain-Harte, Calif., CA **$406,344** employee residences and P. O. duplex, Yosemite National Park, YOS-W-294, CALIFORNIA. Supt. Yosemite National Park, Calif. Bids Sept. 8. CD 7/30.

▲† **W. M. Lyles Co.**, P. O. Box 495, Avenal, Calif., CA **$2,600,235**, aircraft fuel pipe lines from Estero Bay to Naval Air Station, NBy 29252, LEMOORE, CALIF. Dist. P. Wks. Office, 12th Naval Dist., San Bruno, Calif. Bids Oct. 5. CD 10/12, under LB.

Colich Constr. Co., 8320 Isis Ave., Los Angeles, Calif., LB **$388,769**, est. $390,000, (8 bidders), Proj. 572, San Fernando Storm Drain, San Fernando, LOS ANGELES, CALIF. Los Angeles County Flood Control Dist., 2250 Alcazar St., Los Angeles, Calif. Bids Nov. 4. CD 10/12.

Phalcon Constructors, Inc., 2240 Parkway Dr., El Monte, Calif., LB **$578,142**, est. $538,700, (5 bidders), Proj. No. 420, East Compton Storm Drain, Long Beach, LOS ANGELES, CALIF. Los Angeles County Flood Control Dist., 2250 Alcazar St., Los Angeles, Calif. Bids Nov. 4. CD 10/19.

BUILDINGS—LB & CA

▲ **Bettilyon's Inc.**, 333-2nd East, Salt Lake City 1, Utah, LB **$1,389,000**, est. $1,250,000, (6 bidders), 186x292 ft. masonry, steel GYMNASIUM and ATHLETIC BLDG., Weber College, OGDEN, UTAH. State Bldg. Bd., State Capitol, Salt Lake City 14, Utah. Bids Nov. 4. CD 10/21.

▲ **Paulsen Constr. Co.**, 1425 Jefferson, Salt Lake City 15, Utah, LB **$1,360,112**, est. $1,500,000, 3 story, 22,000 sq. ft. VISITOR'S CENTER, SALT LAKE Saints, 47 E. South Temple, Salt Lake City 1, Utah. Bids Nov. 4. CD 10/13.

† **Lewis Cicero & Frank DeLisi**, 1245 Florida St., Imperial Beach, Calif., CA **$974,098**, 60 units, CAPEHART HOUSING, Marine Auxiliary Air Station, YUMA, ARIZ. Dist. P. Wks. Office, 11th Naval Dist., 1220 Pacific Hy., San Diego, Calif. Scholer & Fuller, 2566 N. Camel, P. O. Box 5157, Tucson, Ariz., archts. Bids Sept. 27. CD 10/3.

H. M. Skov, 2512 S. 1st Ave., Yakima, Wash., CA Est. **$900,000**, 82 unit APARTMENT, swimming pool, 1313 Browne Ave., YAKIMA, WASH. Starliter, Inc., c/o contractor. CD 9/14.

▲ **Hoffman Constr. Co.**, 715 SW Columbia St., Portland, Ore., CA Total est. **$5,000,000**, design and construct PHENOL PLANT, KALAMA, WASH. Dow Chemical Co., 1000 Main St., Midland, Mich., H. E. Bovay Jr., 5009 Caroline St., Houston, Tex., consult. engrs. CD 2/11.

▲ **MacDonald Building Co.**, 1517 S. Tacoma Way, Tacoma, Wash., CA **$2,815,415**, 4 and 7 story, 80,000 sq. ft. HOSPITAL addns., TACOMA, WASH., Tacoma General Hospital, 315 S. K. St., Tacoma, Wash. Bids Oct. 4. CD 10/7.

Teeples & Thatcher, 8850 SE Otty Rd., Portland, Ore. CA **$538,757**, 3 story Washington High SCHOOL addn., PORTLAND, ORE. School Dist. No. 1, 631 NE Clackamas St., Portland, Ore. Bids Oct. 13, awarded Oct. 24. CD 10/18, under LB.

Carter Mack Builders, Box 457, Harbor City, Calif., LB **$442,000**, (14 bidders), GYMNASIUM at Junior College, COMPTON, CALIF. Compton Junior College Dist., 1111 E. Artesia Blvd., Compton, Calif. Bids Nov. 4. CD 10/19.

▲ **K. W. Kool**, 1555 Placenta Ave., Newport Beach, Calif., CA **$1,041,688**, 78 DWELLINGS, 3244 Idaho Lane, Tract 3722, COSTA MESA, CALIF. K & B Dev. Co., 1555 Placenta Ave., Newport Beach, Calif.

▲ **K. W. & Koll**, 1555 Placenta Ave., Newport Beach, Calif., CA **$1,042,673**, 63 DWELLINGS, 3248 Block, Minnesota Ave., Tract 3722, COSTA MESA, CALIF. K. & E. Dev. Co., 1555 Placenta Ave., Newport Beach, Calif.

▲ **Kemp Bros.**, 8750 Mettler St., Los Angeles, Calif., LB **$2,437,000**, (7 bidders), Lowell HIGH SCHOOL near La Habra, FULLERTON, CALIF. Fullerton High School Dist., 1000 North Harvard Ave., Fullerton, Calif. Bids Nov. 7. CD 10/21.

Greynald Constr. Co., 13944 Ventura Blvd., Sherman Oaks, Calif., CA **$469,950**, (3 bidders), reinforced brick, concrete block 50-bed HOSPITAL, GRANADA HILLS, CALIF. Devonshire Hospital, c/o Nielsen & Moffatt, archts., 4336 Leimert Blvd., Los Angeles, Calif. Bids Nov. 4. CD 12/3/58.

E. W. Hahn, Inc., 219 S. Hawthorne Blvd., Hawthorne, Calif., CA **$515,000**, MANUFACTURING PLANT addn., 5150 Rosecrans Ave., HAWTHORNE, CALIF. Darsey Corp., 5150 Rosecrans Ave., Hawthorne, Calif. Novikoff Engrs., 3858 Santa Barbara St., Los Angeles, Calif., engrs.

▲ **J. & J. Constr. Co.**, 436 Roxbury Dr., Beverly Hills, Calif., Owner Builds, **$1,000,000**, stucco APARTMENT, 7225 Hollywood Blvd., Formosa Tract, HOLLYWOOD, CALIF. Paul Tolen, 8217 Beverly Blvd., Los Angeles, Calif., engr.

Carl O. Larson, 703 W. 17 St., Santa Ana, Calif., CA **$444,736**, (12 bidders), steel frame, stucco Meadowbrook SCHOOL, HUNTINGTON BEACH, CALIF. Oceanview School Dist., 17021 Huntington Beach Blvd., Huntington Beach, Calif. Frick, Frick & Tipton, 340 N. Altadena Dr., Pasadena, Calif., archts.

▲ **Kemp Bros.**, 8750 Mettler St., Los Angeles, Calif., CA **$1,300,000**, 6 story structural steel OFFICE, Oxnard St. and Lankershim Blvd., NORTH HOLLYWOOD, CALIF. Commonwealth Savings & Loan Co., 5115 Lankershim Blvd., North Hollywood, Calif. Gerald H. Bense & Assoc., 8645 S. Greenlief Ave., Whittier, Calif., archts. Bids Nov. 7. CD 9/22.

Means & Ulrich, 1218 S. Main St., Santa Ana, Calif., LB **$469,700**, est. $00,000, Southwest ELEMENTARY SCHOOL, SANTA ANA, CALIF. Santa Ana Bd. Educ., 1405 French St., Santa Ana, Calif. Bids Nov. 1. CD 10/10.

B. C. Hamann, 11758 Walnut Rd., Lakeside, Calif., LB **$653,700**, (9 bidders), Cajon Park SCHOOL, SANTEE, CALIF. Santee School Dist., 9036 North Magnolia, Santee, Calif. Bids Nov. 3. CD 10/7.

Customcraft Constr. Co., P.O. Box 1228, Oxnard, Calif., Owner Builds, **$622,232**, 39 stucco DWELLINGS, Tulane Ave., Hope and Sweet Sts., Tract 1259-1, VENTURA, CALIF.

Weatherly Inv. Co., 8857 W. Olympic Blvd., Beverly Hills, Calif., Owner Builds, **$475,000**, APARTMENT, 1260-66 Havenhurst Dr., Crescent Heights Tract. WEST HOLLYWOOD, CALIF.

▲ **Haas & Haynie**, 2259 Kalakaua Ave., Honolulu, Hawaii, CA **$1,000,000**, 12 story APARTMENT, HONOLULU, HAWAII. Kapiolani Park Land Co. Ltd., c/o Design Assocs., archts., 1741 Nuuanu Ave., Honolulu, Hawaii, awarded Oct. 1.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

November 23 Saskatchewan November 30 Ontario
December 7 Ontario

STREETS AND ROADS

November 23, 30, December 7 Ontario

BUILDINGS—BA

Ont., Toronto—NURSING SCHOOL—BA 12/14—Dpt. P. Wks., Rm. 6630 East Block, Parliament Bldgs., 8 story nursing school. $800,000. Plans deposit $75. Craig, Madill, Abram & Ingleson, 290 Merton St., archts. M. S. Yolles & Assocs., 111 Richmond St. W., engrs. CD 1/26, under Ontario Hospitals Service Comn., as owner.

HEAVY CONSTRUCTION—LB & CA

Mutual Constr. Ltd., 620 Taylor St., Vancouver, B. C., LB **$425,931** (17 bidders), water system, LANGLEY, B. C. City, City Hall, Langley, B. C. Associated Engineering Services Ltd., 2256 W. 12th St., Vancouver, B. C., engrs.

C. A. Pitts General Contractor, Ltd., 30 Commercial Rd., Leaside, Ont., CA **$866,654**, access road, intake structure, water supply line, incl. laying about 39,000 ft. 6- to 16-in. lines for water supply system, CHURCHILL, MAN. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Underwood, McLellan & Assocs., Ltd., 721 8th St. E., Saskatoon, Sask., engrs. CD 10/21, under LB.

▲ **Commonwealth Constr. Co. Ltd.**, 300 Royal Bank Bldg., Winnipeg, Man., CA Total est. **$4,000,000**, site work, foundations and excavating for 6 story administration bldg., portage Ave. W., WINNIPEG, MAN. Manitoba Telephone System, Telephone Bldg., Portage Ave. E., Winnipeg, Man. Bids Oct. 26. CD 10/25.

▲ **ONTARIO**—Dpt. Hys., Parliament Bldgs., Downsview,

Canada Grading & Structures Ltd., 419 Cherry St., Toronto, Ont., CA **$1,005,195**, high level bridge, Queen Elizabeth Way, Central sub-structure (Contract 60-98), Homer. Bids Oct. 26. CD 11/2, under LB.

ONTARIO—Dpt. Hys., Parliament Bldgs., Downsview, Bids opened 11/2,

H. J. McFarland Constr. Co., Ltd., Talbot St., Picton, Ont., LB **$669,263**, grading, granular base, four bridges, approx. 5.6 mi. Hy. 401, from 2.4 mi. west of Camden Rd. interchange easterly to Millhaven Creek (Contract 60-219), Kingston. CD 10/11.

Bedford Constr. Co., Ltd., 36 Brydon Dr., Rexdale, Ont., CA **$793,438**, grade separation over Canadian Pacific Ry., Kipling Ave., TORONTO, ONT. Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. Bids Oct. 25. CD 10/31, under LB.

▲ **Redfern Constr. Co., Ltd.**, 88 Laird Dr., Toronto, Ont., LB **$1,057,700**, (10 bidders), 2 story, 120,000 sq. ft., 135x420 ft., rein.-con., steel, masonry, brick swine and sheep building, Canadian National Exhibition, TORONTO, ONT. City, City Hall, Toronto, Ont., and Royal Agriculture Society Winter Fair, Toronto, Ont. Earl C. Morgan, 717 Church St., and John B. Parkin Assocs., 1500 Don Mills Rd., Don Mills, Ont., archts. Bids Oct. 31. CD 10/13.

▲ **Louis Donolo, Inc.**, 8320 St. Lawrence Blvd., Montreal, Que., CA **$1,570,000**, pile foundations for Elevator No. 4, Montreal Harbor, MONTREAL, QUE. National Harbors Bd., Hunter Bldg., Ottawa, Ont. Awarded Nov. 4. CD 10/12, under LB.

BUILDINGS—LB & CA

▲ **Christensen & MacDonald**, 612 Tegler Bldg., Edmonton, Alta., LB **$9,249,429**, (6 bidders), steel, concrete active treatment bldg., Royal Alexandra HOSPITAL, Kingsway west of 102nd St., EDMONTON, ALTA. City, City Hall, Edmonton, Alta. Bids Oct. 26. CD 9/30.

Bennett & White (Alberta) Ltd., 1120 9th Ave. S.W., Calgary, Alta., CA **$556,591** (8 bidders), JUNIOR HIGH SCHOOL, GRANDE PRAIRIE, ALTA. Grande Prairie School Bd., Grande Prairie, Alta. Fooks, Milne, Proctor & Assoc., 1250 3rd Ave. S., Lethbridge, Alta., archts.

E. S. Martin Constr. Ltd., 1245 Martin Grove Rd., Rexdale, Ont., LB **$985,837** (7 bidders), 66,000 sq. ft. precast concrete, masonry, concrete block, Vincent Massey SCHOOL, Renforth Dr., TORONTO, ONT. Etobicoke Bd. Educ., 540 Burnhamthorpe Rd., Toronto, Ont. Bids Nov. 2. CD 10/25.

Satok Investments Ltd., 39 Wilbertson Rd., Toronto 7, Ont., Owner Builds, **$850,000**, HOUSING, Ravine View Subdivision, TORONTO, ONT.

Carroll Contg. Co., Ltd., 4135 Dundas St. W., Toronto, Ont., CA **$950,000**, 4 story, 50x200 ft. structural steel Scarborough MUNICIPAL BUILDING addn., TORONTO, ONT. Twp. of Scarborough, 2001 Eglinton Ave. E., Toronto, Ont. Bids Sept. 21. CD 10/12, under LB.

U. S. POSSESSIONS

HEAVY CONSTRUCTION—LB & CA

† **Jefferson Constr. Co.**, 3128 Coral Way, Miami, Fla., CA **$715,816**, Cruz Bay Development, St. John Island and Red Hook Development, St. Thomas Island, Virgin Islands National Park, VIRGIN ISLANDS. Virgin Islands National Park, Charlotte Amalie, St. Thomas, Virgin Islands. Bids Oct. 12. CD 11/4, under LB.

AMERICANS ABROAD

HEAVY CONSTRUCTION—BA

▲ **West Pakistan**—BA 12/16—Water & Power Development Auth., The Pipals, West Mall, Lahore or Kuljiam Corp., 1200 North Broad St., Phila. 21, Pa., U. S. A., consult. engrs., equipment for 15,000 kw. Quetta Thermal Power Station, at Sheikh Mauda near Quetta, incl. two turbo generator units; two 100,000 lbs. per hr. steam generating units, auxiliary equipment (Phase 1).

HEAVY CONSTRUCTION—LB & CA

▲ **Bechtel Corp.**, 220 Bush St., San Francisco, Calif., U.S.A., CA Est. **$6,750,000**, 100 mi. 30 in. crude line Zelten field to Gulf of Sirte, LIBYA. Esso Standard Libya Inc., Tripoli, Libya.

LATIN AMERICA

HEAVY CONSTRUCTION—LB & CA

Ishikawa Jima Heavy Industries Co., Tokyo, Japan, CA Est. $500,000, 7 tender gates and 4 roller gates, Furnas Power Station, BRAZIL. Electrica de Furnas SA, Rua Sao Jose 90, Rio de Janiero, Brazil. CD 6/13/58.

FOREIGN

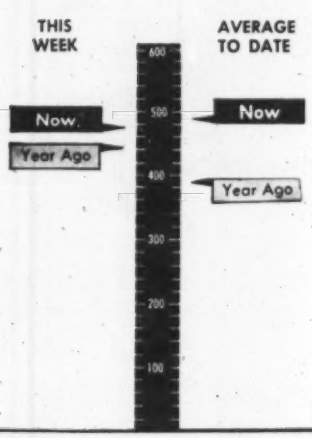
BUILDINGS—LB & CA

▲ **Robert M. Douglas**, Birmingham, England, SUB-ASSEMBLY PLANT and CAR BODY PRESSING PLANT, FELINFOEL, WALES. British Motor Corp., Oxford, England. Total Est. **$19,600,000**;
Redpath Brown & Co., London, England, CA steel work contract for Sub-Assembly Plant, etc. (Felinfoel, Wales).

(Proposal Advertisements see pp. 156 to 158)

Construction Scoreboard

This Week . . .



AMOUNT OF CONTRACTS LET

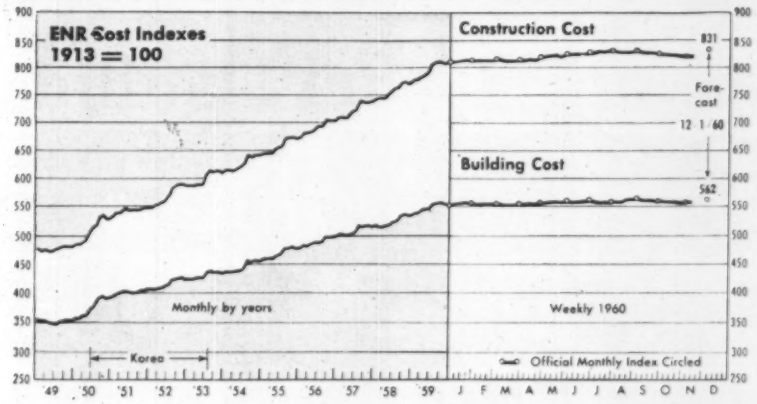
Contracts Awarded In 50 States By Type	This Week millions	Cum. 46 wks 1960	Chge '59-'60 %
All Heavy Construction	$473.6	$20,415.2	+13
By Ownership			
PRIVATE	219.3	10,952.7	+20
PUBLIC	254.3	9,462.5	+ 6
State & Municipal	203.5	7,395.5	+15
Federal	50.8	2,067.0	−17
By Type of Work			
PUBLIC			
Waterworks	7.6	417.6	+18
Sewerage	16.9	534.4	− 7
Bridges*	17.0	722.9	+42
Highways	64.3	3,002.5	+15
Earthwork, Dams & Waterways	5.8	678.3	−13
Buildings:			
Excl. Housing	78.4	2,224.4	− 5
Housing	34.6	628.6	+10
Unclassified	29.9	1,261.6	+ 5
PRIVATE			
Buildings:			
Mass Housing	82.0	5,325.7	+30
Commercial	63.5	2,207.2	+15
Industrial	70.9	2,447.1	− 7
Unclassified	2.9	965.1	+111

*Includes Private bridges

NOTE Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

NEW CONSTRUCTION CAPITAL

	Week of Nov. 10 millions	Cum. 45 wks 1960	Chge '59-'60 %
Corporate Securities	$ 24.5	$ 3,322.1	− 2
State and Municipal:			
All Except Housing	66.6	5,562.5	+ 7
Housing	....	189.3	+76
Federal Loans	....	165.7	+30
Federal Aid	....	3,228.4	− 3
Total Nonfederal	$ 91.1	$12,468.0	+ 3
Federal Appropriations:			
Projects in U. S.	....	3,165.6	−11
Outside U. S.	....	159.1	+610
Total New Capital	$ 91.1	$15,792.7	+0.4


ENR Cost Indexes 1913 = 100
Construction Cost
831
Fore-cast
12 1 60
Building Cost
562
Monthly by years
Weekly 1960
Korea
Official Monthly Index Circled
49 '50 '51 '52 '53 '54 '55 '56 '57 '58 '59 J F M A M J J A S O N D

ENR INDEXES (1913=100), 20-cities' average	Week of Nov. 10 1960	% Change from Oct. 13 1960	% Change from Nov. 12 1959
Construction Cost	830.09	+0.1	+2.5
Building Cost	561.11	0	+1.3

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850. 1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.

Latest Month . . .

CONTRACTS AWARDED

	1960 Oct. (millions)	1960 10-Mos. (millions)	Percent Change from 1959 (†) Oct.	Percent Change from 1959 (†) 10-Mos.
Total U. S. (50 States)	$1,795.5	$19,253.7	+49	+13
Private	1,097.7	10,437.9	+72	+22
Public	697.9	8,815.9	+24	+ 5
State and Municipal	601.0	6,881.5	+42	+14
Federal	96.8	1,934.4	−31	−19
ENR Volume Index, 1913=100	591	607	+42	+10

NEW CONSTRUCTION CAPITAL

Total U. S.	2,317.1	15,480.3	+129	+ 2
State and Municipal Bond Sales	416.1	5,626.6	+12	+12
Corporate Security Sales	774.0	3,137.6	+81	− 2
Federal Loans, Aid (nonfederal work)	516.1	3,391.4	+158	0
Federal Appropriations, (federal work)*	610.9	3,324.7	+4142	− 5

* Includes funds for outside U. S.

† Based on average week: 4 weeks in Oct. '60 and 5 in Oct. '59; 43 weeks to date in '60 and 44 weeks in '59.

MATERIALS SHIPMENTS

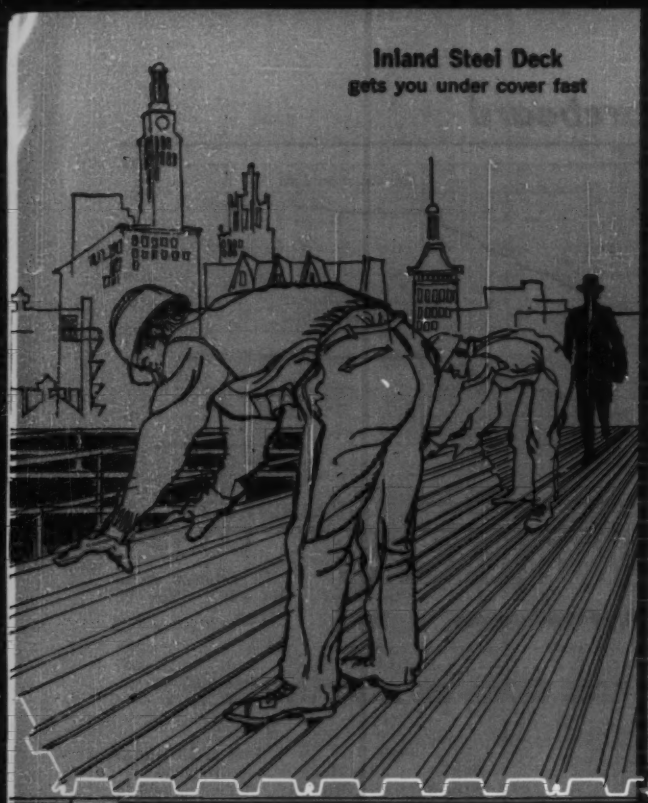
	1960 Aug. (A) Sept. (S)	Cum. (No. of Mos.)	Percent Change from Year Ago Mo.	Percent Change from Year Ago Cum.
Portland Cement, Bur Mines, thous bbls	33,601(S)	239,256(9)	− 4	− 8
Concrete Paving Awards, PCA, thous sq yd	7,446(S)	79,933(9)	+11	+ 4
Fabricated Structural Steel, thous tons	324(S)	2,588(9)	+77	+13
Bookings, AISC, thous tons	260(S)	2,528(9)	− 8	+ 7
Reinforcing Bars, Net, AISI, thous tons	208(S)	1,661(9)	‡	‡
Lumber, NLMA, mil fbm	2,867(S)	27,049(9)	− 8	− 2
Orders, mil fbm	2,790(S)	25,694(9)	− 8	− 6
Production, mil fbm	2,973(S)	26,981(9)	−11	− 1
Clay Products, Bureau of Census				
Brick, Unglazed, Common, Face, mil bri	665(A)	4,390(8)	− 3	−10
Vitrified Clay Sewer Pipe, thous tons	199(A)	1,251(8)	0	− 5
Structural Tile, Unglazed, thous tons	45(A)	340(8)	− 7	− 7
Asphalt Products, Bureau of Census				
Asphalt Roofing, thous sales sqs	6,738(A)	37,705(8)	+14	− 4
Asphalt Siding, thous sales sqs	84(A)	515(8)	− 3	−11
Aluminum, Wrought, Net, Bur Census				
Sheet and Plate (non-heat treatable), mil lbs	101(A)	840(8)	+22	− 5
Wire and Cable, mil lbs	28(A)	201(8)	− 4	−10
Extruded Shapes (soft alloys), mil lbs	71(A)	546(8)	− 8	−11

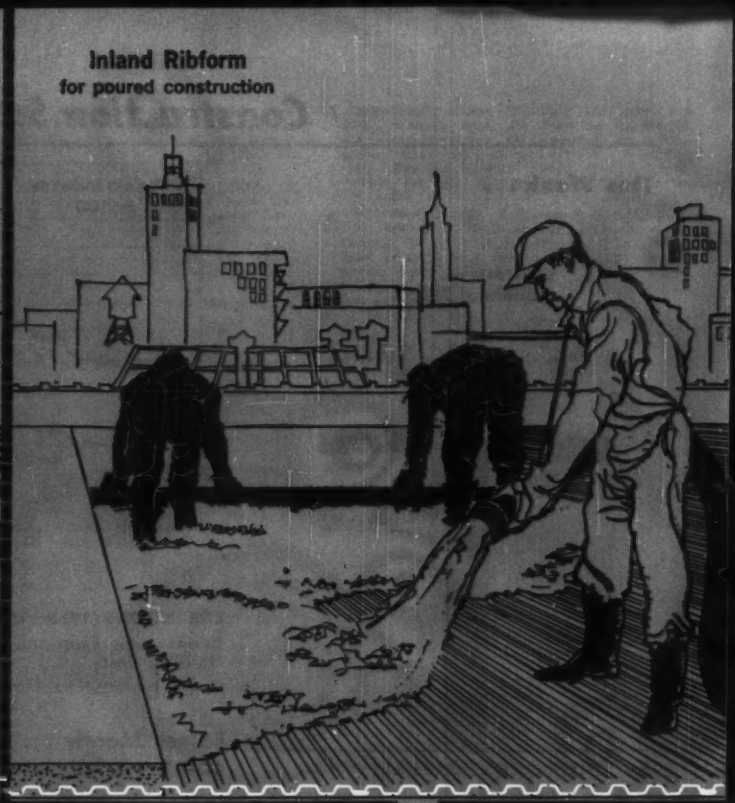
‡ Data for Aug., Sept. '59 not available due to steel strike.

EMPLOYMENT AND FAILURES

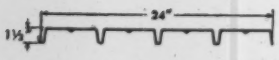
Contract Const Employment, BLS, thous	3,068p(S)	2,760(9)**	+ 1	+ 1
Contractor Failures, Dun & Bradstreet				
Number	218(S)	1,903(9)	+14	+23
Liabilities, thous	$14,417(S)	$138,705(9)	+14	+51

** Average per month p = preliminary estimate



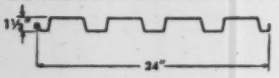


Steel deck or centering...you name it, INLAND has it!



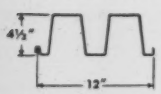
A-DECK — For purlin spacings not exceeding 8'4". Narrow ribs provide deck surface that supports the thinnest or softest types of insulation.

H-DECK — New! For simple spans to 20'0" — 3" and 4½" depths. Especially practical to cover walkways in shopping centers, schools, other installations.

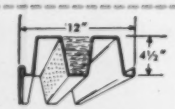


B-DECK — For spans to 10'0". Wide rib distributes metal for greater structural efficiency. Well suited for use as side wall panels.

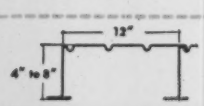
B-ACOUSTIDECK — Two-in-one panel combines steel roof deck with acoustical ceiling having Noise-Reduction Coefficient of .70. Used for spans to 10'0".



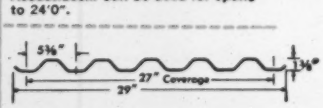
C-DECK—Carries normal roof loads over spans up to 24'0". Used extensively in canopies.



C-ACOUSTIDECK — Offers same Noise-Reduction Coefficient as B-Acoustideck. Can be used for spans to 24'0".



T-STEEL — New! Galvanized only. For clear spans to 32'0". Adaptable to acoustical and flush, luminous ceiling treatments. Provides superior diaphragm to resist seismic and wind loads.



RIBFORM — High-tensile, galvanized steel form for concrete slabs over spans up to 8'0". Three types: Standard, Heavy-Duty, Super-Duty (shown).

Expansion projects and new buildings get under cover fast and economically, when you specify an Inland roof system.

Inland steel deck is easy to handle and weld in place — in any weather that a man can work. Effects of construction abuse are held to a minimum, since types A, B, C, and H decks are Bonderized, then covered with a baked-enamel primer that resists on-the-job damage. One field coat of paint over this is usually enough.

In concrete-over-steel construction, Inland Ribform supports wet concrete with minimum deflection. Rigid sheets are quickly and inexpensively attached to supports — in place, they provide a safe work platform for crews.

Write for catalogs 240, 241, and 245 — see Sweet's sections 2c/Inl, 11a/In, and 2a/In. For help on unusual problems, you can draw on the diversified experience of Inland sales engineers. Write or call your nearest Inland office.

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Capital Spending Plans Trimmed

- **Outlays in 1961 for plants and equipment to decline about 3% from 1960 to $35.1 billion.**
- **But utility and commercial firms, a large market for contractors, plan increases next year.**

U. S. businessmen now plan to spend $35.1 billion for new plants and equipment in 1961. This would be 3% below the $36.1 billion they expect to spend in all of this year. Significantly, however, businessmen's preliminary plans for spending in 1962 are extremely close to the outlays planned for 1961, and plans for both those years are now more generous than the preliminary estimates given last spring.

The 1960 estimate and the 1961 and 1962 preliminary totals are among the key findings of the fall survey of Business' Plans for New Plants and Equipment conducted in October by the McGraw-Hill Department of Economics. This is not a forecast; it is a report on what companies are planning to spend.

The spending total now given for 1960 shows that American businessmen have trimmed sail since the spring. McGraw-Hill's survey then showed that private industry planned to spend $37.9 billion this year (ENR Apr. 28, p 36).

The revised 1960 total of $36.1 billion represents a 4.7% drop from the estimate given last spring. Apparently, however, spending plans have been delayed to 1961 and 1962, not cut out of budgets.

Most of the bigger spenders plan to lay out less next year than this year. Electric and gas utilities and commercial companies, however, plan to boost 1961 outlays over this year by 4% and 1% respectively. Utilities' spending plans for 1961 total $6.1 billion, compared to estimated spending in all of 1960 of $5.9 billion. And commercial business plans outlays in 1961 of $8.7 billion. Their spending for this year is estimated at $8.1 billion.

The totals for utilities and commercial companies are good news for the construction industry: The outlays planned by these two components of industry to a large extent represent expenditures for construction.

Outlays of most of the other business groups are directed to equipment. Of the over-all business total, about 30%, or $10.5 billion, probably will end up in the construction industry's coffers. The estimate, however, excludes outlays of the utility and commercial companies.

According to present plans, manufacturing industries as a whole will spend $13.9 billion on new plants and equipment next year. This is about 3% below spending indicated for this year, but is 2.1% above manufacturing outlays in 1957, when total capital outlays by all businesses hit a record $38.4 billion.

Outlays planned by manufacturers next year will top those of the recession year of 1958 by a fat 42.7%.

Machinery, automotive, paper and pulp, food and beverages and those industries included in "miscellaneous manufacturing" have raised their sights for 1961 since last spring. This is in contrast to all other manufacturing industries, which now indicate a lower level of spending next year.

The electrical machinery companies are planning the largest increase—10%—next year. However, this industry will spend considerably less this year than it had planned, apparently pushing spending plans forward to 1961. The automotive industry plans to lift 1961 spending by 7%.

The largest decline in the metalworking industries—12%—is planned by the "other metalworking" group—fabricated metals and instruments. The transportation equipment industry is planning a reduction of 9% in 1961 expenditures. The machinery industry is trimming its capital investment by 3%.

In the chemical process industries, petroleum companies, although burdened with spare capacity, plan to spend 3% more in 1961. These outlays will be directed primarily at modernizing obsolete installations. The chemical industry, which has spent well over $1 billion every year since 1951, is continuing its long-term growth. Chemical companies plan to boost their in-

Capital Spending Plans by Industry

(billions of dollars)

	1959 Actual*	1960 Estimated	1961 Planned	1960–1961 % Change	1962 Planned
ALL MANUFACTURING	**$12.07**	**$14.33**	**$13.93**	**− 3**	**$13.35**
Iron and Steel	1.04	1.52	1.37	−10%	1.18
Nonferrous Metals	.31	.34	.34	0	.32
Machinery	.91	1.15	1.11	− 3	1.11
Electrical Machinery	.52	.62	.68	+10	.63
Autos, Trucks & Parts	.64	.89	.95	+ 7	1.02
Transportation Equipment (Aircraft, Ships, R. R. eq'pt.)	.39	.41	.37	−10	.35
Other Metalworking	.88	.97	.85	−12	.87
Chemicals	1.24	1.61	1.64	+ 2	1.59
Paper and Pulp	.63	.75	.69	− 8	.53
Rubber	.19	.24	.23	− 4	.20
Stone, Clay and Glass	.53	.63	.56	−11	.55
Petroleum & Coal Products	2.49	2.45	2.52	+ 3	2.50
Food and Beverages	.82	.94	.99	+ 5	.97
Textiles	.41	.53	.42	−21	.40
Miscellaneous Manufacturing	1.07	1.28	1.21	− 5	1.13
NONMANUFACTURING					
Mining	.99	.99	.90	− 9	.89
Railroads	.92	1.04	.79	−24	.83
Other Transportation & Communications	4.69	5.20	4.61	−11	4.18
Electric and Gas Utilities	5.67	5.89	6.14	+ 4	6.01
Commercial (1)	8.21	8.61	8.70	+ 1	8.54
ALL BUSINESS	**32.55**	**36.06**	**35.07**	**− 3**	**33.80**

** U. S. Department of Commerce, Securities & Exchange Commission, McGraw-Hill Department of Economics*
(1) Figure based on large chain, mail order and department stores, insurance companies, banks and other commercial businesses
DATA: McGraw-Hill Department of Economics

vestment next year by 2%, to a total of $1.64 billion. The chemical industry, one of the largest research and development spenders, will place heavy stress on both modernization and capacity, which will be used to produce new products.

Among the other process industries —stone, clay and glass, paper rubber— there are indications that the level of investment will be lower next year. These industries all are operating considerably below preferred rates.

The food and beverage industry plans to increase expenditures by 6% next year, but textile companies indicate a reduction of 21%.

The steel industry continues to spend heavily, even though it has been operating at a low rate for most of this year. Companies in this industry plan expenditures of nearly $1.4 billion in 1961. Although that is 10% below this year's investment, the total still will be the third highest yearly outlay on record. The planned expenditures emphasize the steel industry's need to continue modernization of obsolete facilities.

Manufacturers' plans for capital spending in 1962 are close to plans for next year. About half the manufacturing industries indicate they now plan to spend more in 1962 than they had planned earlier this year. As a whole, manufacturers have added almost $500 million to their 1962 plans since last spring.

Business in Brief . . .

• **Contractor licensing** – Contractor groups in Wyoming and Washington are campaigning for a contractor licensing law. The Wyoming Contractors Association will submit to the 1961 legislature a bill requiring that contractors be financially capable of handling a contract before bidding a job. It also calls for a license. The Washington proposal would be aimed at eliminating so-called "fly-by-night" contractors.

• **Sign of the times?**—Flintkote Co., building materials producer, declared a fourth quarterly dividend in stock instead of cash. In the previous three quarters it declared 45 cents on each common share. The move was made to conserve cash in view of the firm's capital expansion program.

• **Record spending plans**—Borg-Warner Corp., Chicago, will spend a record $40 million for new plants and equipment next year.

• **Railroad outlay**—Northern Pacific Railway Co. will spend $11 million for an electronically controlled freight yard at Spokane, Wash.

• **Buildings for Beaumont**—Construction under way or definitely scheduled in Beaumont, Tex., has a total value of $300 million, according to that city's Chamber of Commerce.

• **Hot construction market**—The nation's ice cream industry will spend $750 million for modernization in the next five years, according to dairy products officials.

• **Taxpayer interest**—A Lake Charles, La. businessman has filed a court suit in Baton Rouge to halt alleged substitution of inferior materials in a highway project near DeQuincy. The suit charges the highway department is allowing use of uncrushed oyster shell, despite contract specifications calling for crushed shell.

• **College contracts coming**—Cornell University, Ithaca, N. Y., has 11 building projects valued at $28.2 million on the planning boards. Another $22 million worth of construction is currently under way.

• **Peruvian power**—Peru is planning two power projects—on the Mantaro River and in Tacna Province—to have a total generating capacity of 1.6 million kw. A Japanese team, headed by Tatsugora Nakamura of the Overseas Electrical Industry Survey Institute, is assisting with plans.

• **Money for water**—Asheville, N. C., voters recently approved a $4.5-million bond issue to pay for construction of a 15-mile, 36-in. water transmission line, a 24-in. spur line, and a 500,000-gal storage reservoir.

• **Big plans**—Phoenix, Ariz., and surrounding Maricopa County plan to spend $358 million for roads during the next 20 years.

• **Consolidation means building**—Collyer Insulated Wire Corp., Pawtucket, R. I., will build a $3-million plant at Lincoln, R. I.

Slag Heap Revisited

Webb & Knapp to reclaim steel from copper wastes

Webb & Knapp, Inc. of New York City is one step closer to getting into the steel production business.

Latest move toward the company's proposed steel producing plant was the recent signing of a 20-year contract by William Zeckendorf, Webb & Knapp president, and the federal government's Bonneville Power Administration. Starting in July 1963, the BPA will deliver 120,000 kw to a steel plant at Anaconda, Mont. Delivery of another 120,000 kw will start in November 1963. This amount of power will require construction of a new Bonneville substation.

Webb & Knapp plans to build a $30-million to $40-million integrated steel mill at Anaconda. It would have an annual capacity of 350,000 tons.

The plant will utilize the Strategic-Udy Process, developed by Strategic Metals Corp. of Buffalo, N. Y. The steel produced by the process will be made from copper slag. Webb & Knapp already has agreed to buy 40 million tons of the slag from Anaconda Co., which operates a copper mine and smelter at Anaconda (ENR Oct. 1, 1959, p. 98).

Webb & Knapp also plans construction of a similar mill at Clarkdale, Ariz.

The new method will allow construction of small, integrated steel plants in areas where high-grade ores are not available.

Webb & Knapp has formed Webb & Knapp Strategic Corp. to construct and operate the plants.

Koppers Co. is designing both the Clarkdale mill and the Anaconda mill.

Not Much Construction in GM's Big Spending Plans

A relatively small part of the $1.25 billion that General Motors Corp. plans to spend next year will wind up in the pockets of domestic contractors.

Frederic G. Donner, chairman, says that from $938 million to $1 billion of the total will be spent in the U. S., with the balance going overseas. And of the total, including domestic and foreign outlays, $400 million will be spent on new-model retooling.

This means that about $850 million will remain for "durable" goods—plant and equipment. Moreover, chances are pretty good that a generous portion of this total will be spent on equipment to improve efficiency as opposed to new plant to expand capacity.

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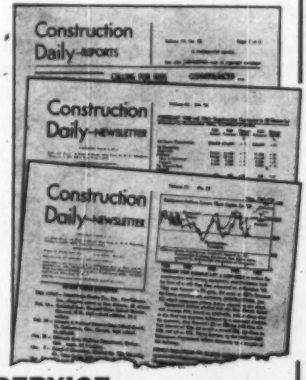
• A statistical staff that analyzes and interprets this flow of new business and reports to CD readers what it means to them.



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PLANTS: In Lorain, Elyria and Bucyrus, Ohio . . . **PRODUCTS:** Power shovels, cranes, draglines, clamshells, and hoes on crawlers from ⅜- to 2½-yard capacity • Cranes from 7 to 80 tons . . . on crawlers, and as rubber-tire Moto-Cranes, and Self-Propelled Cranes • Rubber tire front-end Moto-Loaders in 6000-lb. and 7000-lb. carrying capacity . . . **OUTLETS:** Lorain products sold and serviced by 249 distributor outlets throughout the world.

New Labor Law Hurts Owners

Union handbilling of customers to force an owner to use a union contractor is lawful, NLRB official rules

Construction unions, pinched by the tighter secondary boycott provisions of the Landrum-Griffin labor law, may make greater use of the "publicity" provision of the law if the National Labor Relations Board goes along with the conclusion of one of its trial examiners.

As a result, economic pressure on owners could become an increasingly significant lever for harassing contractors who offend a union for one reason or another.

The ruling in a San Antonio, Tex., labor dispute involved a local of the plumbers' union. Trial examiner Fannie Boyls approved union distribution of handbills to customers at a shopping center in an effort to force one of the shopping center tenants to fire a nonunion subcontractor.

Of principal interest to the construction industry: The ruling is the first to hold that the publicity provision of the law is available for union use in cases where the offending employer deals, as contractors do, in services rather than in products. The NLRB General Counsel felt that the handbilling was not protected by the law because the installation work performed by the contractor was not a product distributed by the shopping center tenant.

The publicity provision is part of the Landrum-Griffin section that amends the boycott provisions of the Taft-Hartley Act. That section now protects neutral employers from direct coercion by unions engaged in a labor dispute with another employer. But, out of deference to the principle of freedom of speech, it allows unions to publicize the fact that a neutral employer is dealing in the "product or products" of another employer the union considers unfair. The two conditions are that the publicizing be by means other than picketing, and that it not result in a work stoppage against the neutral employer.

The trial examiner in the San Antonio case said it is clear that Congress intended "to prohibit only direct coercion of neutral employers, not indirect coercion, such as appeals to customers of the neutral employer." The reference to "products," she said, was meant to illustrate the familiar example of product boycotts by consumers rather than "to exclude disputes involving services."

The AFL-CIO building trades unions in Washington, D. C., have taken a similar position. Last summer, they handbilled customers of another store chain in protest against the use of nonunion construction labor (ENR Sept. 1, p. 68).

The San Antonio trouble revolved around the Piggly Wiggly retail grocery chain, which rented space in a shopping center under construction. The company hired the San Antonio Refrigeration Co., a nonunion firm, to install its refrigeration.

In an unsuccessful attempt to get the grocery company to use union labor, the plumbers local did three things:

- It picketed two entrances to the shopping center, causing work stoppages against two neutral subcontractors working on the project.
- It threatened Piggly Wiggly with "a lot of trouble" if it continued to use the nonunion firm.
- It distributed handbills at or near the premises of six or seven Piggly Wiggly stores in San Antonio. The handbills urged customers not to patronize the store because it "allows subcontractors to pay their employees substandard wages."

It was conceded in each instance that the union's primary dispute was with Refrigeration. The ultimate objective was to make Refrigeration hire union men or force it off the job.

The trial examiner ruled that the picketing amounted to an illegal secondary boycott under the old law, and that the threat of trouble for Piggly Wiggly was also unlawful under the Landrum-Griffin amendment that outlaws direct coercion of secondary employers.

But the handbilling was legal, the trial examiner said, even though it, too, was a secondary boycott.

The examiner expressed the view that Congress intended to "prohibit picketing, whether a product or service be involved, while permitting other forms of truthful publicity which do not cause employees of the neutral to cease performing any work."

Moonlighting Is Fairly Stable

The amount of "moonlighting" that goes on among construction workers makes the building tradesman a "versatile and energetic" component of our labor force, according to the U. S. Labor Department's Bureau of Labor Statistics.

Latest figures of the bureau show that 186,000 construction workers—about 6% of the construction labor force—hold down another job on the side. In the three surveys that have been conducted, the figure has remained fairly stable, ranging from 5.7 to 6.6%.

This puts the construction industry among those with a "high proportion" of moonlighting. The extent of the practice is admittedly one of the deterrents to a stronger union drive for a shorter work-week. For the purposes of comparison, the frequency of moonlighting among construction workers is about the same as among male teachers, and about half of what it is among postal service workers. In contrast, only 4.3% of the factory work force holds down two jobs.

Of the construction workers found by the bureau to be holding two jobs, 66.2% worked full-time in construction and part-time on their secondary jobs; 33.8% worked part-time on both jobs. Slightly over half of them were self-employed when not working in construction, with about 40% of the self-employed being engaged in farming.

The construction industry, at the same time, was reported to be a source of secondary jobs for a substantial number of men primarily engaged in other industries. This, the bureau said, "somewhat" augments the normal supply of manpower.

The surveys on which the moonlighting observations are based were conducted in December 1959, July 1958 and July 1957. The relative stability of the construction figures indicates that seasonal factors may not play a significant role in moonlighting. The incidence of the practice last December, for example, was lower than it was in the previous two Julys.

The bureau concedes, however, that the survey results are inconclusive. It cannot tell how many of the workers are "true dual jobholders" and how many of those tabulated as such were actually changing jobs during the particular weeks the surveys were made.

Labor in Brief . . .

• **Davis-Bacon** — The Chamber of Commerce has scheduled a meeting in Washington, D. C., next week to consider the Chamber's policy on the federal prevailing wage law. Present policy says: The law is no longer needed and should be repealed; until repealed, it should be amended to provide judicial review of administrative interpretations and wage determinations.

• **Charges safety violations**—For the first time in more than 12 years, the Rhode Island state labor director has brought legal action against a contractor for alleged violations of the state's industrial safety code on crane operation. Case stems from an August accident in which a crane operator was electrocuted when the boom touched high tension wires.

• **Par for the course**—The carpenters union reports that it won 229 of the 238 cases it processed last year before the construction industry's National Joint Board for the Settlement of Jurisdictional Disputes. It also won 67 cases initiated by other unions. The brotherhood's conclusion: "We did very well indeed."

• **Safety education**—The operating engineers union is undertaking a five-point safety education program, which, among other things, will push incorporation of safety regulations in union contracts and the formation of local, joint labor-management safety committees. One-hundred and eleven of the union's members were killed in on-the-job accidents last year.

• **For adults only**—The U. S. Department of Labor has set the minimum age for workers engaged in the demolition and wrecking of buildings at 18. The order, effective November 15, also covers such other "hazardous" work as operation and maintenance of circular saws and bandsaws.

• **Pay boost**—The Ontario Hydro-Electric Power Commission and the Ontario Hydro Employees Union have signed a one-year labor contract that grants workers a seven-cent wage increase, retroactive to April 1, plus a two-cent boost that was effective November 2. A 1.5% increase across the board was obtained for workers on weekly salary.

• **Hiring hall review**—The U. S. Supreme Court gave further assurance last week of a comprehensive review of the law on hiring hall procedures when it added two more cases to the hearing docket. Arguments on the new cases involving the typographical union are expected to follow hearings on the teamster and carpenter cases, which are pending.

• **Aluminum pay boost**—Aluminum workers in the Columbia Falls, Mont., plant of Anaconda Aluminum Co. have ratified a one-year labor contract that provides for an average wage increase of 7.5 cents an hour. New minimum wage at the plant is $2.33 an hour.

• **Shorter workweek?**—David McDonald, president of the steelworkers union, suggested last week that Congress establish a 32-hour workweek to help solve the unemployment problem. A shorter workweek, he said, would "provide more jobs for more men."

• **Glaziers settle**—Agreement on a two-year labor contract has ended a four-week strike of glaziers in Syracuse, N. Y. The glaziers receive a 15-cent pay increase this year and another 25-cent boost next year.

• **A stronger association**—The president of the Ontario General Contractors Association has called for a stronger, centralized employer federation to deal more successfully with labor problems. A permanent staff of labor relations experts, he said is one of the things needed.

• **Underpayments**—The sum of $80,000 to cover underpayments of prevailing wages to workers on public works projects in New York has been collected from contractors during the first nine months of this year by the state labor department's Bureau of Public Works.

• **Hawaiian organizing**—Petitions for union elections among workers for 25 construction firms on the island of Hawaii were filed with the National Labor Relations Board last week by Harry Bridges' longshoremen's union and Local 3 of the operating engineers union. This is the first big test of the ILWU's mounting drive into construction.

Construction Idleness Increased Last Month

The U. S. Labor Department last week issued its October employment report showing an unexpected increase in the number of workers who are out of jobs.

Unemployment, instead of dropping as it should in October, rose to 3.6 million. This yielded the highest seasonally adjusted rate of unemployment since the 1958 recession—6.4%.

Employment was down in construction and related industries (lumber, stone, clay, glass), in primary metals, machinery, textiles and apparel.

The drop over the month in construction was 56,000, making the industry's October employment figure 3,012,000. The October level of employment, however, was still 51,000 higher than it was a year ago.

AFL-CIO President George Meany, who had anticipated a pessimistic report, had earlier accused the government of suppressing the report until after the election for political purposes. He had urged pre-election release so that Richard Nixon could try to reconcile its content with his claim that America "never had it so good."

One of the results of the worsening employment picture, the government said, is that state-insured unemployment, which normally drops this time of year, moved up about 80,000 to 1.7 million. And long-term unemployment (15 weeks or longer) rose by 200,000 to 1 million.

On the brighter side, average weekly earnings of factory production workers increased by 63 cents to $91.48, to set a new October record. Hourly earnings moved to an all-time high of $2.31.

Painters Seek Night Work By Taking a Cut in Pay

A new labor contract clause aimed at creating more night work in winter months has been agreed to by Toledo, Ohio, painting contractors and Local 7 of the painters union.

In a joint announcement, the union and the Toledo Painting Contractors Association said journeymen painters will now receive eight hours pay for seven hours of work performed outside of regular daytime working hours.

The new agreement was adopted on a one-year trial basis.

In the past, members of the union have received time-and-a-half for all hours worked outside regular daytime working hours.

Spokesmen for the two groups said they hoped the new provision would lead to more employment in winter months in office buildings and factories.

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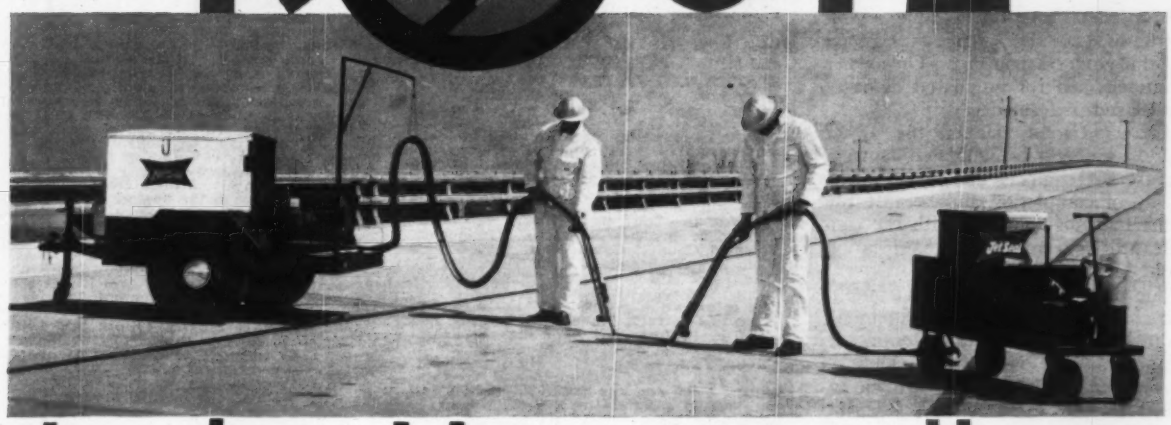

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Highway construction engineers the nation over are specifying Allied JET SEAL as the preferred concrete joint sealant. JET SEAL's superior sealing qualities mean time, labor, and money saved during application and through JET SEAL's exceptionally long life.

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Allied JET SEAL can solve your concrete joint sealing problems on highways and bridges (including vertical joints). JET SEAL (9015H) is the most efficient concrete joint sealant ever devised.

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Legal

Contract May Limit Right To Liquidated Damages

A contract may give an owner the right to recover liquidated damages for a breach of the contract. Although it may specify the manner in which the right can be exercised, a court may not require literal compliance by the owner.

In a federal case, for example, a contractor sued for the balance he claimed was due under a contract. The owner counterclaimed for liquidated damages for delayed performance.

The contractor claimed the owner had lost his right to liquidated damages because the engineer had issued a certificate of completion and because the owner had not complied with the contract provision calling for notification of the claim in writing.

The engineer's certificate of completion contained the following statement: "In making final payment to Contractor, the net amount due the Contractor, as shown by this Certification, will be reduced by the sums, if any, due the Owner for liquidated damages, payments made to date, or other sums which the Owner has the right under the terms of the Contract, and signature by all parties does not preclude the retention by the Owner of such amounts."

The trial court held[1] that this certificate of completion did not bar the owner from asserting its counterclaim for liquidated damages for delayed performance. The court also held that the failure of the owner to comply with the contract provision that the owner shall promptly notify the contractor of the way the liquidated damages were computed did not bar the right to recover the same since numerous reports issued every week by the engineer and received and accepted by the contractor gave the contractor notice that he was to be held liable for liquidated damages for delayed performance.

(1) Walco Eng. & Constr. Co. v. East Ky. Rural Electric Cooperative Corp., 172 F. Supp. 780, U. S. District Court, May 7, 1959.

These summaries of court decisions are prepared by I. Vernon Werbin, Esq., New York attorney and licensed professional engineer, who is author of the following books published by McGraw-Hill Book Company, Inc.: *Legal Phases of Construction Contracts; Legal Guide for Contractors, Architects and Engineers; and Legal Cases for Contractors, Architects and Engineers.*

OFFICIAL PROPOSALS

Bids: December 15, 1960

Refuse Incinerator Plant For the Town of Greenwich Fairfield County, Connecticut

NOTICE TO BIDDERS

NOTICE IS HEREBY GIVEN that the Town of Greenwich, Fairfield County, Connecticut will receive separate sealed bids for the:

BUILDING CONSTRUCTION CONTRACT NO. 1
FURNACE & EQUIPMENT CONTRACT NO. 2
HEATING SYSTEM CONTRACT NO. 3
PLUMBING SYSTEM CONTRACT NO. 4
ELECTRICAL SYSTEM CONTRACT NO. 5
CHIMNEY CONTRACT NO. 6

for the construction of a building and appurtenant structures, complete with site improvements, for the enlargement of the incinerator building, New Furnace, New Crane, etc.

Bids will be received by the Purchasing Agent of the Town in the Town Hall Meeting Room in TOWN HALL, Greenwich, Fairfield County, Conn., until 2:30 o'clock P.M., Eastern Standard Time, December 15, 1960, and then at said place publicly opened and read aloud.

The Information for Bidders, Form of Bid, Form of Contract, Plans, Specifications and Form of Performance Bond may be examined at the office of the Commissioner of Public Works in the TOWN HALL ANNEX, Greenwich, Conn., or the office of the Consulting Engineer, and copies thereof may be obtained at the office of the Commissioner of Public Works upon payment of Fifty ($50.00) Dollars for each set. Any bidder, upon returning such set in good condition within thirty (30) days after the award of contract or rejection of bids, will be refunded his full payment, and any non-bidder upon so returning such set in good condition within the same period of time will be refunded Twenty-five ($25.00) Dollars. Checks given as deposit on plans and specifications shall be made payable to the Town of Greenwich.

In general, the work included in Contract No. 1 consists of the construction of a building and appurtenant structures, complete with site improvements, for the enlargement of the existing plant by the addition of 250 tons per day capacity. Contract No. 2 covers the installation of the furnace and mechanical equipment. The heating, plumbing and electrical installations are to be executed under Contracts 3, 4 and 5 respectively, and the erection of the chimney under Contract No. 6.

Each bidder must deposit with his bid, an amount of not less than Five (5%) percent of the base bid in the form of cash or a certified check, (Bid bonds will not be accepted in lieu thereof) subject to the conditions provided in the Information for Bidders. In addition, a Consent of Surety, signed by an acceptable Corporate Surety Company, shall be executed in the form accompanying the bid.

The Contractor will be required to comply with all provisions of the Labor Laws of the State of Connecticut.

Contractor will be required to provide a performance and payment bond (100% of the accepted bid), property damage and public liability insurance with the provision to hold the Town of Greenwich harmless for any accidents occurring during the construction period.

All bids must be submitted in exact conformity with the "Form of Bid" in the Specifications. Bids must be submitted in sealed envelopes, bearing on the outside, the name of bidder, his address, the name of project, and the Contract bid upon.

The Town of Greenwich, Fairfield County, Connecticut, reserves the right to reject any or all bids, waive any informalities, or to accept that bid, acceptance of which will, in the judgment of the Commissioner of Public Works, best secure the public interest and efficient work.

No bidder may withdraw his bid within forty-five (45) days after the date of opening thereof.

THE TOWN OF GREENWICH
W. F. JOHNSON
COMMISSIONER OF PUBLIC WORKS

Bids: December 22, 1960

Purchase of Hydraulic Dredge

COUNTY OF SUFFOLK, NEW YORK
DEPARTMENT OF PUBLIC WORKS,
YAPHANK AVENUE, YAPHANK,
NEW YORK

Sealed bids, in duplicate will be received until 11:00 A.M. prevailing time, on December 22nd, 1960, in the office of the Suffolk County Department of Public Works on Yaphank Avenue, Yaphank, Suffolk County, New York by the Commissioner of Public Works, at which time the bids will be publicly opened and read for the furnishing of one (1) new, heavy duty, 12-inch hydraulic pipeline dredge.

The Proposal Form, Form of Contract and Bond and the Specifications may be examined at the office of the Suffolk County Department of Public Works and copies thereof may be obtained upon application. The charge for a set of forms and specifications is $15.00 which amount will be refunded if they are returned in good condition within thirty (30) days of the award of contract or the rejection of bids.

Bids will be considered only from qualified firms who are and have been regularly and continuously in the business of designing, constructing, and servicing heavy duty hydraulic pipeline dredges for at least ten years and who have built at least five (5) dredges of the type specified and of comparative or greater size and power within the past 5 year period and which dredges can be proved to be in successful and economical operation.

Bids will be evaluated taking into consideration price; the equipment the bidder proposes to furnish; availability of spare parts; specified time of delivery; the quality of the bidders' design, manufacturing and servicing facilities; the actual dredge building experience of the bidder; the quality of the dredges they have built or have under construction; the field proven efficiency and economy of operation of similar dredges designed and manufactured by the bidder; and the completeness of the bidders' offer and conformity with the Department's specifications and requirements.

Each bidder must deposit with his bid a certified check made payable to the Suffolk County Department of Public Works in an amount of not less than five percentum (5%) of the gross bid in the proposal form.

The Department reserves the right to waive any informalities in or to reject any or all bids.

All bids are to be submitted in a sealed envelope plainly marked on the outside "Bid for Hydraulic Pipe Line Dredge".

H. F. BISHOP
Commissioner of Public Works

Bids: December 6, 1960

Feeder Road Program

MINISTRY OF PUBLIC WORKS
REPUBLIC OF EL SALVADOR
BIDS: December 6, 1960
NOTICE TO CONTRACTORS

The Ministry of Public Works of the Republic of El Salvador advises that on December 6, 1960 bids will be received for the construction of a major portion of the proposed Feeder Road Program of the country. The Specifications, Plans and Contract Documents will be for sale in El Salvador on October 31, 1960.

All Contractors, interested in taking part in this bidding are requested to obtain the necessary Documents, Plans and Specifications from the Office of the Proveedor Especifico de Obras Publicas, Edificio Morazan a C. P., San Salvador, El Salvador, C. A. All requests must be accompanied by a certified check in the amount of Sixty Dollars ($60.00) which will not be returned.

MINISTRY OF PUBLIC WORKS
REPUBLIC OF EL SALVADOR,
C. A.

READ THE OFFICIAL PROPOSAL COLUMN OF
ENGINEERING NEWS-RECORD
THIS WEEK AND EVERY WEEK

OFFICIAL PROPOSALS

Bids: December 9, 1960

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on the 9th day of December 1960, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, N. F. Ronan, Asst. District Engineer, 353 Broadway, Albany 1, New York						
Albany (Rte. 43)	R.C. 60-193	Normanskill Viaduct, S.H. 9109 Delaware, Pt. 2, S.H. 41	1.42	Asphalt Concrete	$34,000 Plans $5	$632,000
Albany (Rte. 155)	PSC 18537	Elimination of the Grade Crossing of Shakers-Watervliet, S.H. 879 and the Delaware and Hudson Railroad	0.61	9" Cem. Conc. Pavt. = 0.57 Mi.; Misc. Work = 0.04 Mi.; RRGS Comp. I-Beam & Plate Girder 11 Sps, 860' Total; Gate House & Fencing	$42,000 Plans $5	769,000
Greene (Rte. 81)	R.C. 60-186	Greenville-Coxsackie, Pt. 2, S.H. 719; Greenville-Coxsackie, Pt. 3, S.H. 1365	4.41	Asphalt Concrete Twin 15' Open Box	$46,000 Plans $5	828,000
Schenectady (Int. Trg. Rte. 890)	FIC 60-18 FISH 60-9	Interstate Rte. Conn. 550 (Michigan Ave. to Schenectady Crosstown Conn., Pt. 1) Project I-890-5(16)	1.41 (2.04 Acc.)	9" Cem. Conc. Pavt., 2 @ 36'; Var. = 1.22 Mi.; Misc. Work = 0.19 Mi.; Access = 1.66 Mi. Cem. Conc. Pavt. & 0.38 Mi. Asph. Concrete; 3 HGS Comp. I-Beam, 4 Spa. 216.5' Tot., 4 Spa. 195.2' Tot.; 4 Spa. 179.5' Tot.; Ped. Underpass Enclosed Box	$160,000 Plans $5	2,900,000
DISTRICT No. 2, L. Ketchum, District Engineer, 109 No. Genesee Street, Utica 1, New York						
Montgomery (Rte. 5)	FAC 60-29 FARC 60-194	Mohawk River Turnpike, Amsterdam-Tribes Hill, S. H. 108, City of Amsterdam, East-West Art. Highway Project F-U-349(15)	2.26	9" Cem. Conc. Pavt., 2 @ 24' Var. = 2.10 Mi.; Asph. Conc. = 0.16 Mi.; Precast Conc. Beam 1 Sp. 31.8'	$72,000 Plans $5	1,314,000
Oneida (Rte. 12)	R.C. 60-163	Marcy Hill-Trenton, S.H. 931	3.60	Asphalt Conc. Type 2A, Incl. Repairs to Bridge No. 1	$16,000 Plans $5	291,000
DISTRICT No. 3, E. E. Towlson, District Engineer, 333 E. Washington St., Syracuse, New York						
Onondaga (Rte. 48)	R.C. 60-185	Baldwinsville-State Fair Grounds, S.H. 8496	2.33	Asphalt Concrete, Type 1A	$1,800 Plans $5	33,000
Onondaga	FAC 60-28	City of Syracuse: West St.-Herald Place Art. Hwy. Project U-446(9)	1.17	Demolition of Buildings	$19,000 Plans $5	341,000
Wayne (Rte. 21)	R.C. 60-190	Palmyra-Marion, S.H. 1714, Marion-Williamson, Pt. 1, S.H. 992	7.16 (1.48 Acc.)	Asph. Conc. Type 1A = 8.64 Mi.; Comp. WF Truss Bridge; 3 Spa. 324' Total	$95,000 Plans $5	1,725,000
DISTRICT No. 4, B. F. Perry, District Engineer, Barge Canal Terminal, Rochester 1, New York						
Livingston	FASS 60-19	Nunda-Dansville, Pt. 2, Co. Rd. Project S-501(3)	5.61	Top Course Bit. Mac. (Asph. Emulsion) = 5.58 Mi. Misc. Work = 0.03 Mi.	$46,000 Plans $5	824,000
Monroe	FISH 60-13 FAC 60-26	Interstate Rte. Conn. 580 Rochester Western Expressway (Howard Road to Rochester City Line) Rochester Outer Loop (Chili Ave. to Lyell Ave.) Project I-490-2(20); U-UG-1093(9)	1.79 (5.20 Acc.)	9" Reinf. Conc. Pavt., 2 @ 24' Var. = 1.79 Mi.; Acc. = 3.77 Mi. Cem. Conc. Pavt. & 1.43 Mi. Asph. Concrete 1 HGS-Prestress. Conc. Beam Br. 4 Spa., 193' Tot. 6 HGS Comp. I-Beam Brs., 3 Spa. 131.5' Tot.; 3 Spa., 126.5' Tot.; 3 Spa. 148' Tot.; 3 Spa. 203.8' Tot.; 4 Spa. 206.5' Tot.; 4 Spa. 217.5' Tot.; 4 HGS Comp. Pl. Gird. Brs. 3 Spa. 281.3' Tot.; 3 Spa. 269.1' Tot.; 1 Sp. 150'; 1 Sp. 150'; 1 RRGS Thru Pl. Gird. Br. 2 Spa., 144' Tot.	$350,000 Plans $10	6,179,000
DISTRICT No. 5, E. G. H. Youngmann, District Engineer, State Office Bldg., 65 Court Street, Buffalo 2, New York						
Cattaraugus	FAC 60-13	City of Olean: East-West Art. Hwy. (East State Street: Union Street to Barry Street) Project U-141(6)	0.14	Asphalt Concrete Type 2A = 0.09 Mi. Misc. Work = 0.05 Mi.	$4,500 Plans $5	80,000
DISTRICT No. 7, R. W. Sweet, District Engineer, 444 Van Duzee Street, Watertown, New York						
Clinton (Int. Trg.) Rte. 87)	FISH 60-15	Interstate Rte. 502, Sections 7C-11 and 7C-12 (Moffitt Rd. to Stratton Rd.) Project I-87-4(10)	6.19 (1.04 Acc.)	Asphalt Concrete Type 1A; HGS Prestressed Conc. Beam 7 Spa. 352.6' Total	$195,000 Plans $5	3,565,000
Clinton (Int. Trg. Rte. 87)	FISH 60-14	Interstate Route 502, Sections 7C-2 and 7C-3 (Stratton Rd. to Miner Farm Rd.) Project I-IG-87-4(9)	5.44 (2.51 Acc.)	Asph. Conc. Ty. 1A = 7.76 Mi.; Misc. Work = 0.19 Mi.; 4 HGS Prestress. Conc. Beam; 6 Spa. 320' Tot., 3 Spa. 178' Tot.; 3 Spa. 152' Tot., 6 Spa. 314' Tot.; 1 Br. Reinf. Conc. Box 2 Spa. 15' Ea.; 1 Br. Reinf. Conc. Open Box 2 Spa. 15' Ea.; 2 RRGS Prestress. Conc. Beam; 3 Spa. 133' Tot., 3 Spa. 133' Tot.	$255,000 Plans $10	5,022,000
Jefferson (Rte. 11)	R.C. 60-189	Watertown-Philadelphia, Pt. 1-C, S.H. 5681; Watertown-Philadelphia, Pt. 2, S.H. 5617	3.66	Asph. Conc. Ty. 1A = 3.60 Mi.; Misc Work = 0.06 Mi.; RRGS-Comp. WF Beam, 1 Sp. 82'	$110,000 Plans $5	2,000,000
Lewis (Rte. 26)	R.C. 60-188	West Leyden-Constableville, Pt. 2, S.H. 8188; Constableville-Lyons Falls, Pt. 1, S.H. 1600	1.62	Asphalt Conc. Ty. 1A Comp. I-Beam Br. 2 Spa. 124.1' Total	$35,000 Plans $5	609,000
DISTRICT No. 8, K. G. Rauer, District Engineer, Pleasant Valley Rd., Poughkeepsie, New York						
Dutchess (Rte. 22, 55)	FARC 60-110	Billings-Poughquag, S.H. 8525, Stonehouse-Stormville, S.H. 1162, Stonehouse-Pawling, S.H. 1677, Pawling-Patterson, S.H. 343, Pawling Village, S.H. 5009 Project F-1025(3); F-FG-625(5); F-350(23)	8.23 (0.57 Acc.)	Asph. Conc. = 7.63 Mi.; 9" Cem. Conc. Pavt. 2 @ 24' = 1.17 Mi. Bridge-Reinf. Conc. Box 20.8' Span RRGS-NYCRR Prestress. Conc. Beam-3 Spans 139.4' Total; HGS-Comp. I-Beam, 4 Spans, 200.2' Total	$230,000 Plans $5	4,170,000
Dutchess	FAC 60-27	Poughkeepsie; North-South Art. Project U-322(19)	2.61	Demolition of Buildings	$4,800 Plans $5	84,000
DISTRICT No. 9, J. C. Frederick, District Engineer, 71 Frederick Street, Binghamton, New York						
Delaware (Rte. 17)	R.C. 60-187	East Branch-Sullivan Co. Line, Pt. 1, S.H. 5383A; Hancock-East Branch, Pt. 2, S.H. 5246; Hancock-East Branch, Pt. 1, S.H. 5456	7.36 (4.36 Acc.)	9" Cem. Conc. Pavt. 2 @ 24' = 7.36 Mi.; Access = 1.85 Mi. Cem. Conc. Pavt.; 2.31 Mi. Asph. Conc. Pavt. & 0.20 Mi. Fdn. Crse. Gran. Mat. Type A; 3 Brs. Reinf. Conc. Boxes, 23.2', 24.4', 20.4' Skew Spans; 1 Br. Comp. Haunched Gird. & Beam, 5 Spa, 576' Tot.; 6 Brs. Comp. Beam, 3 Spa. 165' Tot.; 4 Spa. 359' Tot.; 9 Spa. 711' Tot.; 5 Spa. 518' Tot.; 1 Sp. 64'; 4 Spa. 165' Tot.; 1 Br. Reinf. Conc. Rig. Fr., 1 Sp. 50.3'	$640,000 Plans $10	11,600,000
Sullivan (Rte. 17)	R.C. 60-176	Liberty-County Line, Pt. 2, S.H. 5234	0.18	Asph. Conc. Type 1A Comp. I-Beam Bridge 113' Span	$12,000 Plans $5	217,000
DISTRICT No. 10, A. M. Sarr, District Engineer, 325 W. Main Street, Babylon, New York						
Bronx (Int. Trg. Rte. 95)	FICBE 60-5	Interstate Rte. Conn. 511 Cross Bronx Expressway-Cont. 2A (Major Deegan Expressway Interchange) (Undercliff Ave. to Plimpton Ave.) Project EI-95-1(47)	0.18	Cement Conc. Pavt. with Carbon Black; 3 HGS-Rig. Fr., 3 Spa. 186.6' Tot., 2 Spa. 107.1' Tot., 1 Sp. 36.7' Tot., 1 HGS Comp. Beam 1 Sp. 170.2'; 1 HGS Comp. Beam, 4 Spa. 267.6' Tot. & 1 Sp. Conc. Slab 48'; 1 HGS Pl. Gird. 1 Sp. 209'	$421,000 Plans $10	7,652,000
Kings (Int. Trg. Rte. 278)	FIGE 60-3	Interstate Rte. Conn. 512 Gowanus Expressway, Cont. 2 (Hamilton Ave: Clinton St. to Second Ave.) Project EI-278-1(54)15	0.61 (0.57 Acc.)	7½" Reinf. Conc. Slab Roadway (on Viaduct) = 0.56 Mi.; Misc. Work = 0.05 Mi., Sheet Asph. Pavt. (Street Repairs) = 0.57 Mi.; Widen and Strengthen Exist. Elevated Steel Structure, 33 Spa. = 2,946' Total	$600,000 Plans $5	1,083,000
Kings	FAPETS 60-1	Prospect Expressway: Fort Hamilton Parkway Interch. (Greenwood Ave. to Beverly Rd. FAPE 59-1) Project U-1081(6)	0.54	Traffic Signs	$2,500 Plans $5	46,000
Nassau (Rte. 27)	FARC 60-191	Conduit Boulevard-Cont. 4, S.H. 5701A, Pt. 5, (Beech St. To Unqua Road) Project U-947(23)	3.85	Cem. Conc. Pavt. with Carb. Black = ½ of 2.74 Mi. Asph. Conc. = ½ of 2.74 Mi.+ 1.02 Mi., Misc. Work = 0.09 Mi.	$150,000 Plans $5	2,733,000
Nassau (Rte. 24)	FALIE 60-4	Long Island Expressway, Cont. 3, (Guinea Woods Road to Jericho Turnpike) Project U-862(29)	4.45 (5.08 Acc.)	Landscaping; Traffic Signs; Delineators	$13,000 Plans $5	237,000
Nassau (Rte. 24)	FALIETS 60-5	Long Island Expressway-Cont. 5, (Jericho Turnpike to South Oyster Bay Road) Project U-862(30)	3.39 (5.99 Acc.)	Traffic Signs	$5,000 Plans $5	93,000
Nassau (Rte. 107)	R.C. 60-192	Massapequa-Glen Cove, S.H. 9017, (Merrick Road to Hempstead Turnpike)	4.10	Asphalt Concrete Pavt.	$46,000 Plans $5	841,000
Suffolk	HSPTS 60-2	Heckscher State Parkway, Cont. No. 4, Sunrise Highway to Heckscher State Park	6.27 (4.43 Acc.)	Traffic Signs	$2,500 Plans $5	45,000
Nassau & Suffolk	OP 60-1	Ocean Parkway (Tobay Beach to Gilgo State Park)	3.83	Highway Slope Protection	$35,000 Plans $5	668,500

(Continued on the following page)

OFFICIAL PROPOSALS

(Continued from preceding page)

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

If the deposit is $10.00 or more, full refund for one copy of the plans and specifications will be made to a bidder for the particular project, if such plans and specifications are returned in good condition within 30 days after the award of the contract or after the rejection of the proposal. The successful bidder is not required to return the copy of the plans and specifications in order to be entitled to such refund. If the deposit is $10.00 or more, partial refund will be made for the return of all other copies of plans and specifications in good condition within 30 days after the award of the contract or the rejection of the proposal.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

Bids: January, 1961

Kingdom of Thailand
Royal Irrigation Department
Bangkok, Thailand

INVITATION FOR BIDS—NO. YS-2-19

The Royal Irrigation Department of the Kingdom of Thailand hereby invites sealed written bids for furnishing and delivering the following equipment either fob Contractor's shipping point or cif Bangkok Wharf, Thailand, for the Bhumiphol Power Plant, Yanhee Multipurpose Project, Kingdom of Thailand, in accordance with the Contract Documents, for:

Furnishing one (1) 10.6 cubic meter per minute (375 cfm)—7.0 kg per sq. cm (100 psi) air compressor; one (1) 2.8 cubic meter per minute (100 cfm)—7.0 kg per sq. cm (100 psi) air compressor; two (2) 0.57 cubic meter per minute (20 cfm)—24.6 kg per sq. cm (350 psi) air compressors; three (3) 8.8 kg per sq. cm (125 psi) air receivers; and two (2) 26.4 kg per sq. cm (375 psi) air receivers.

Invitations for Bids will be issued in November, 1960, and will be opened in January, 1961. Copies of Contract Documents, Invitation for Bids—No. YS-2-19, Air Compressors and Accessories, may be obtained by qualified Bidders on written request to:

Royal Irrigation Department
Attention: Thai Liaison Engineer
c/o Engineering Consultants, Inc.
1901 South Navajo Street
Denver 23, Colorado

Each request must be accompanied by a check or money order, payable to the Royal Irrigation Department, in the amount of U.S. $10.00 for each copy of the Contract Documents requested. The remittance is nonreturnable.

M. L. Xujati Kambhu
Director General
Royal Irrigation Department
Kingdom of Thailand
Bangkok, Thailand

OFFICIAL PROPOSALS

Bids: November 26, 1960

Statement by the Ministry of Irrigation and Hydro-Electric Power, Government of the Republic of Sudan, on the Bids for Khashm El Girba Dam Project

In response to requests received by the Ministry from some companies, which have been selected to bid for Khashm El Girba Dam Project, asking for extension of the closing date of tenders which was originally set for November 10, 1960, H. E. the Minister of Irrigation and Hydro-Electric Power has agreed to extend the closing date for this tender from November 10 to November 26, 1960 to enable contractors to study the special tenders for this Project; including the tender for the dam itself, the tender for sluices—equipment and the tender for turbines and hydro-electric station.

The Ministry has already asked its consulting engineers in Grenoble, France to notify all contractors to this effect.

U. S. Government

United States Department of Commerce, Bureau of Public Roads, November 10, 1960. SEALED BIDS will be received at the Inter-American Liaison Office, Bureau of Public Roads, Room G-13C, G. S. A. Building, Washington 25, D. C., until 2:00 p.m., e.s.t., December 15, 1960 for the construction of Rama Road Project R-3D on the Rama Road in Nicaragua. The project consists of 14 miles of grading, drainage, special subbase, and other work. It begins approximately 138 miles east of San Benito where the Rama Road connects with the Inter-American Highway and extends east toward Rama. It is accessible by an all weather road. Bids will be considered only from United States firms, Nicaragua firms, or other bonafide highway contracting firms doing business within the Inter-American countries of Guatemala, El Salvador, Honduras, Costa Rica, or Panama which shall be principally owned by citizens of one of the above countries in which they do business and which shall have an acceptable record of performance on highway construction in their respective countries. The principal items of work are: 757,451 cu. mts. unclassified excavation, 100,032 cu. mts. borrow excavation, 4,661 cu. mts. excavation for structures (culverts), 80,000 cu. mts. special subbase, 1,031 cu. yds. cement rubble masonry, 7,214 lin. ft. nestable bituminous coated corrugated metal pipe (24" to 60"), 424 lin. ft. structural plate pipe bituminous coated (144" and 156"). One set of plans, specifications, and proposal forms will be furnished free to prospective bidders upon request to the above address or to the Inter-American Highway Division Office, Bureau of Public Roads, 203 Carlos Palazio Building, Calle 5a, Managua, Nicaragua. Additional sets of plans may be purchased for $10 each. Paul F. Royster, Assistant Commissioner for Operations.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5437) will be received at Ellis, Kansas, until 10 a.m., Central Standard Time, December 21, 1960, for furnishing labor and materials for Earthwork and Structures, Cedar Bluff Canal, Station (-) 0+43.1 to Station 211+44.6, Cedar Bluff Unit, Kansas, Smoky Hills Division, Missouri River Basin Project. Location near Ellis, Kansas. Principal items are 534,000 cu. yds. excavation; 53,600 cu. yds.—placing and compacting earth lining for canal; 5,950 lin. ft.—furnishing and laying concrete pressure pipe of various symbols; 507 lin. ft.—furnishing and laying 24, 42 and 48-inch diameter Class III, concrete culvert pipe; and other work. Completion time 440 days. For particulars, address Bureau of Reclamation, Building 46, Denver Federal Center, Denver 25, Colorado; P. O. Box 841, Stockton, Kansas or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

D. C.—Armory Board, Nov. 7, 1960. FURNISHING AND INSTALLING SEATING AND PIPE RAILING FOR THE D. C. STADIUM, 2001 E. Capitol St., Wash., D. C., involving approximately 50,000 fixed chairs. (Invitation No. C-6145-B). Bid forms, plans and specifications are now available from D. C. Procurement Office, Rm. 404, 499 Pa. Ave., N.W., Wash. 1, D. C., upon deposit of a certified check for $25.00 per set, payable to D. C. Treasurer. (Phone NA 8-6000, Ext. 2378). SEALED BIDS TO BE RECEIVED 2:00 PM, EST, Nov. 29, 1960 in Rm. 404, Procurement Office, 499 Pa. Ave., N.W., and OPENED AT D. C. NATIONAL GUARD ARMORY, 2001 E. Capitol St., Wash., D. C., at 3:00 PM, EST, on the same day.

U. S. Government

OFFICIAL PROPOSALS

Bids: December 5, 1960

Board of Education
Bureau of Construction
Notice Re: Prequalification Forms for Contractors

NOTICE IS HEREBY GIVEN THAT

The Deputy Superintendent of Schools, Office of School Buildings, Bureau of Construction, 4th Floor, Room 407, 42-15 Crescent Street, Long Island City 1, New York, will receive applications for prequalifications from contractors who may wish to submit bids for the proposed hereinafter specified contracts.

For the General Construction, Plumbing & Drainage, Heating & Ventilating, Electrical Work & Lighting Fixtures of:
Public School 193 (Addition)
152nd Street, between 11th & 12th Avenues
Borough of Queens

The Prequalification Application form must be secured at the Office of School Buildings, Bureau of Construction, Room 407, 42-15 Crescent Street, Long Island City 1, New York and submitted to the Deputy Superintendent of Schools at the same above address.

Bids, when advertised, will be received only from prequalified bidders.

The time for submitting prequalification applications by contractors will expire on Monday, December 5, 1960.

Joseph R. Weiss
Deputy Superintendent of Schools
Starting Saturday, November 12, 1960
Five (5) days.
Dated: November 9, 1960
JJF:MFM

Bids: See Advertisement

The Port of New York Authority

Sealed proposals for the following work will be received at the Office of the Chief Engineer, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on date indicated, at which time said proposals will be opened and read in Room 1108.

Contract LGA-310.007—La Guardia Airport—New Runway 13-31, Taxiways, Terminal Apron, and Pump Stations—Deposit $50.00 per set of documents—Bids will be received until 2:30 P.M. on Thursday, December 22, 1960.

Contract BP-210.004—Brooklyn-Port Authority Piers—Pier No. 8—Bulkhead, Paving and Utilities—Deposit $30.00 per set of documents—Bids will be received until 2:30 P.M. on Thursday, December 15, 1960.

Contract LGA-339.431—La Guardia Airport—Borings—Rikers Island and Rikers Island Channel—No deposit required—Bids will be received until 2:30 P.M., on Thursday, December 1, 1960.

Contract documents may be seen at the Office of the Assistant Chief Engineer for Design, Room 1115, 111 Eighth Avenue, New York 11, N. Y. Documents will be furnished upon receipt of the above deposit (each set including one copy of the Contract Drawings) for not more than three sets to any one company. Additional sets will be furnished upon payment of an amount for each set equal to the deposit indicated above, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115 where the documents will be furnished.

Those who have submitted a bid on the contract directly to the Authority will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman

New York, November 17, 1960

EMPLOYMENT OPPORTUNITIES

ADDRESS BOX NO. REPLIES TO: Box No. Classified Adv. Div. of this publication. Send to office nearest you.
NEW YORK 36: P. O. Box 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

DISPLAYED RATE:

The advertising rate is $30.20 per inch for all advertising appearing on other than a contract basis. Frequency rates quoted on request.

An advertising inch is measured ⅞" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

December 1st ISSUE CLOSES NOVEMBER 18th

UNDISPLAYED RATE:

$2.40 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Position Wanted ads take ½ of above rate.

Box numbers—count as 1 line.

Discount of 10% if full payment is mad in advance for 4 consecutive insertions.

Not subject to Agency Commission.

Send NEW Ads and Inquiries to Classified Advertising Division of ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36.

• POSITIONS VACANT

Engineer (Civil, Mechanical or Geological) P.E. desirable. Excellent opportunity for aggressive engineer to grow with an expanding eastern drilling contractor. Design and sales engineering, municipal and industrial water wells, water and sewage treatment and pumping tests. P-5349, Engineering News-Record.

Director of Specifications Department. Large Midwest consulting firm has immediate opening for capable individual with broad experience in specification writing for all branches of building construction work. Must also possess administrative ability. Send complete resume of educational background and experience, including personal qualifications and small photograph to P-5347, Engineering News-Record.

Construction Engineer—Experienced, Competent, Familiar with Design of Falsework, Erection Equipment, Steel Erection Procedures, Structural Steel Detailing, and Job Organization. Wanted by Large Eastern Fabricator and Erector. P-5499, Engineering News-Record.

Have opening for recent Civil Engineer Graduate with military obligations completed who desires to learn the construction business. Must be ambitious, aggressive, dependable, use no intoxicants, willing to start in the field on industrial buildings and heavy construction, and willing to move. Must be single. We operate throughout Kansas and adjacent states; offer excellent opportunity for advancement. Martin K. Eby Construction Company, Inc., P.O. Box 1679, Wichita, Kansas.

Civil Engineer experienced in office and field work covering heavy construction, road, bridge and dam construction. Give full details as to age, experience, marital status, salary required and reference in first letter. P-5599, Engineering News-Record.

Estimators senior. Civil, architectural and mechanical. Government facilities and buildings. Airports, dams and hydro-electric facilities. International bidding, office in New York. P-5590, Engineering News-Record.

Structural Engineer, Graduate Engineer, 35–50. Mature, well seasoned in reinforced concrete design to handle promotional work for trade association. Duties include work with architects and engineers on concrete designs, and consultations with building officials and engineering committees on building codes. Considerable travel required. Salary open. Headquarters, Washington, D.C. P-5633, Engineering News-Record.

Experienced Stone Quarry Manager. Please send resume of experience, qualifications and requirements to P.O. Box 2571, Union Street Station, 1813 Lancaster Avenue, Wilmington 5, Delaware.

Senior Civil Engineer (Highway Planning)— New York State Department of Public Works has 15 vacancies. Salary $7818 to $9408. New York State residence is not required. Requires license to practice professional engineering in New York State or in state or territory where candidate resides or has place of business and two years of satisfactory professional civil engineering experience. Civil Service examination on January 21, 1961. For detailed information and applications write to the Recruitment Unit, Box 72A, New York State Department of Civil Service, The State Campus, Albany 1, New York.

Sanitary Engineers wanted for State Department. Enjoy living in Arizona. Write State Merit System for details. Capitol Building, Phoenix, Arizona.

Construction Engineer Licensed, Competent, Familiar with Design of Falsework, Erection Equipment, Steel Erection Procedures, Structural Steel Detailing, and Job Organization. Wanted by Harris Structural Steel Company. Write P-5499, Engineering News-Record.

Draftsmen, Structural—Experienced, Checkers and detailers of structural steel shop dwgs. Relocation expenses. Fink & Zwecker Co., 1100 Crescent Ave., N.E., Atlanta 9, Ga.

Estimator — For established contractor in Deep South Metropolitan area, specializing in Heavy Construction, Foundations and Sewer and Water Plants. Graduate Civil Engineer, Age 30 to 38 preferred. P-5645, Engineering News-Record.

• POSITIONS VACANT

Engineers—Structural Steel Sales Promotion. We are searching for Civil or Architectural engineers, preferable age 35 to 45, to handle technical and promotional work with customers of the structural steel fabricating industry. Headquarters will be in regional offices at New York City, Philadelphia, Washington, D. C., Columbus, Ohio, Chicago, Minneapolis, Omaha, and Los Angeles. Applicants should hold a B.S. in C.E. or A.E. and preferably be registered. Experience in bridge and building design, and construction in both steel and concrete required. Experience in sales and promotion work desirable. Salary open depending on experience. Insurance and retirement plans available. Send complete resume, recent photo if available, and salary requirements by mail to American Institute of Steel Construction, Inc., 101 Park Avenue, New York 17, New York. All applications will be acknowledged.

Engineers—Structural. Expd. in design of schools, hospitals, housing, etc.; concrete & steel, for consulting engineers office, New Jersey. Write giving education, exp. & salary: Box 1109, 1501 Bdway., N.Y. 38, N.Y.

• EMPLOYMENT SERVICE

Better Positions—$6,000 to $35,000. Want a substantial salary increase, more opportunity or different location? This national 49 year old service connects you with best openings. You pay us only nominal fee for negotiations: This we refund when employer pays placement fee. Present position protected. In complete confidence, write for particulars. R. W. Bixby, Inc., 559 Brisbane Bldg., Buffalo, N. Y.

• POSITIONS WANTED

Project Manager—Chief Estimator 17 years experience large building construction. Desires relocation in Central or Southern Florida. PW-5552, Engineering News-Record.

Situation Wanted—Former officer large railroad twenty years track and good construction, maintenance, terminal and line operation, administration and negotiation labor contracts. Not CE. PW-5554, Engineering News-Record.

Construction executive age 37 qualified manager of equipment maintenance division. Prefer large earthmoving company. PW-5579, Engineering News-Record.

Master mechanic desires permanent position with heavy construction company. 12 years field and shop experience on all types of machinery. Excellent labor relations and a good pusher. PW-5584, Engineering News-Record.

Construction Manager 25 yrs. in heavy commercial and Industrial construction. Detailed knowledge all phases structural, mechanical including estimating, scheduling, office and field supervision, cost control and organizational ability. G. K. Chiles, 211 Del Amigo Rd., Danville, Calif. Vernon 7-5206.

General Manager 22 yrs. all phases hvy. constr. Contract administration & project supervision, estimating, procedures, claims. Major projects U. S. & O. S. PW-5578, Engineering News-Record.

Engineer-Manager. PE, BSCE, MASCE, MNSPE. Age 33. Experience: 7 years responsible field engineering, construction supervision, structural design, and project coordination of heavy industrial and commercial structures. Past year managing own light-construction business. Desires management career opportunity in industry, engineering, or with general contractor. Inquiries acknowledged. PW-5605, Engineering News-Record.

CONSTRUCTION SUPERVISORS

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CHEMICAL PLANTS
in each of the following categories:
CIVIL
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Minimum of 10 years as General Foreman or equivalent in direct charge of craftsmen.

Reply Fully in confidence to:
J. W. FEAMSTER
Personnel Manager
SD PLANTS INCORPORATED
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New York 16, N. Y.

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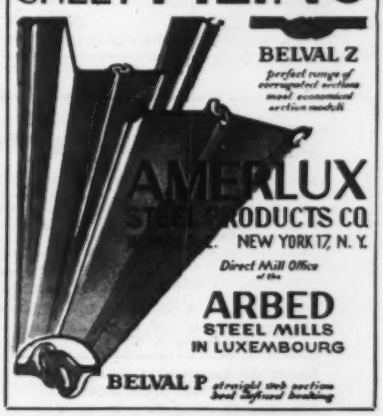
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Editorials

The Election and Construction

CONSTRUCTION HAD A SIZABLE STAKE in last week's general elections.

A new Administration and changes in Congress were inevitable results that will in many ways affect the industry as a whole. Only time will tell all the effects.

There were bond issues up for decision totaling $3.4 billion worth of construction that would be financed, or not. Much more was financed than not. There was in one bond issue alone—the $1.75-billion California water plan, which passed—the largest state or local issue ever voted upon.

Many construction men were running for office at state and local level. A few ran for Congress. Contractor John Volpe won the governorship of Massachusetts; Gov. George Clyde of Utah, a civil engineer, was reelected.

A report in this issue goes into more detail on some of the effects of the election (p. 21). All told, construction had quite a stake.

R&D by an Owner-Builder

THERE'S PROFITABLE STUDY for designers, builders and owners alike in the recent high-speed erection of a new type of parking structure in Hempstead, N. Y. (ENR Oct. 27, p. 24).

The structure itself—precast concrete slabs, columns and ramp sections—is an interesting design for a multistory structure. Its simple erection—it was put up in three days, working around the clock—is of interest to builders. And its $1,200-per-car cost should interest owners.

But of overriding interest to all in construction should be the way this new structure, called Tierpark, evolved. It is, in fact, a new product, born of extensive research and development. Beyond the spectacular point made in putting up this structure in a night-and-day assault that produced 600 parking spaces in 70 hours, there is a lesson here in the fruits of R&D.

Before this construction spectacular could be staged, Tishman Research Corp.—a subsidiary of Tishman Realty & Construction Corp.—had spent months in development of the product. The research subsidiary of this big owner-builder had been established in October 1959, for the sole purpose of studying where, within construction, there could be found new methods, materials and processes that would be useful—and profitable—to Tishman. Tierpark is the first major result of that effort.

Tierpark itself reflects careful planning and engineering. It is the result of extensive testing. It is a carefully researched and developed new product produced out of familiar old products. It is a new design introducing a different construction method at a favorable cost.

But Tierpark, more than that, is an example of what can come of R&D in the construction industry. Designers should be constantly researching into new structures, as many of them are. Constructors should be developing new methods, as many do. Here is evidence of an owner, too, giving such stress to R&D as to set up an organization devoted solely to it. Results of this effort should encourage more to do likewise.

The Modern Hydra

HYDRA WAS THE MANY-HEADED MONSTER eventually slain by the fabled strong man, Hercules. Hercules' problem in disposing of his formidable adversary was that every time he lopped off one of Hydra's heads, two more grew in its place. Modern highway engineers and administrators are battling a problem in urban areas with heavy traffic concentrations that in some respects resembles the problem of Hercules.

Mounting traffic demands are met by designing and building a new highway, bridge or tunnel. The new facility is opened to traffic, with suitable fanfare; and it performs well, at least for some period of time. Then, all too often, generated and attracted traffic produces congestion that cuts the effectiveness of the new road, bridge or tunnel. A case in point is Philadelphia's Schuylkill Expressway (ENR Nov. 3, p. 15), overtaxed and called "obsolete" two years after its completion.

New construction of transportation facilities brings new traffic; heavy traffic breeds congestion; congestion causes demand for new construction. And the cycle is ready to repeat itself.

Viewed in a narrow sense, this phenomenon is good for the construction industry. More engineering, more construction and more maintenance are the results. Viewed in a broad sense, there obviously must be limits put on the facilities to be built for moving people in urban areas. Only so much land can be taken for expressways; they can be only so many lanes wide and have only so much capacity. And there is only so much money available. Physically and financially, asymptotic limits appear.

The limit on expressway construction is not necessarily just around the corner, but it can be seen in the distance with increasing clarity. In many areas of population concentrations, it could be reached in a period of years that, historically, would be very short.

The implication is clear. It has been said before but bears saying again: Responsible engineers and planners must realize that highways cannot provide the total answer to the total transportation problem. They must focus on the development of integrated transportation systems, particularly on the revitalization and extension of mass transit in all its forms.

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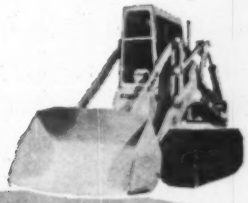

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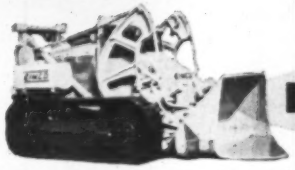

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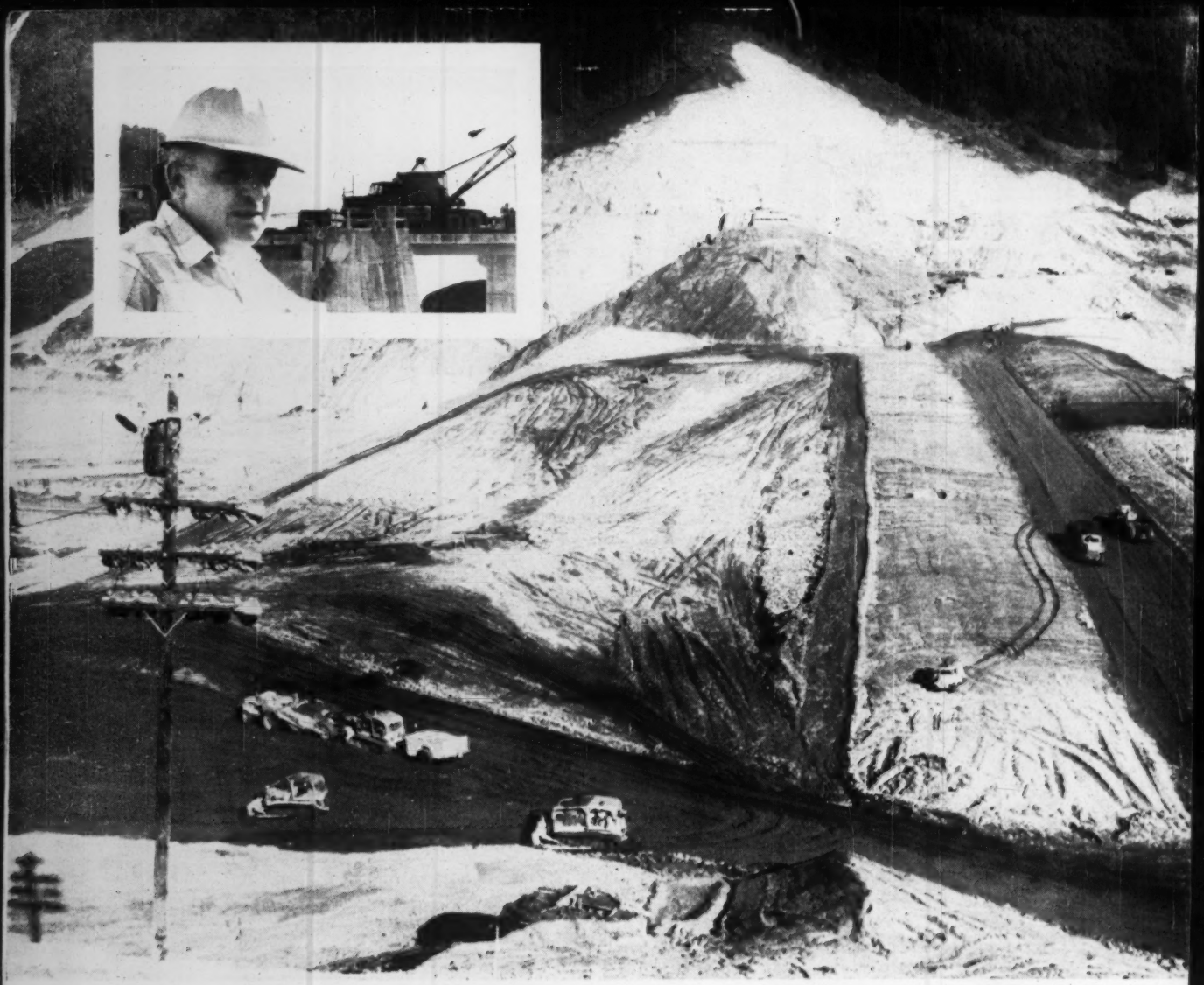

Hills Creek Dam to drive two 30,000 K.W. generators

Hills Creek Dam is part of the $42 million U. S. Corps of Engineers' Willamette Valley Project near Oak Ridge, Oregon. Green-Tecon, a joint venture of the Green Construction Company, Des Moines, Ia., and the Tecon Corporation of Dallas, Tex., has the earthmoving contract. This job involves 11 million yards of earth and gravel fill on the dam which totals 2400′ in length, 1600′ at the base and 24′ at the crest. The dam will back up a 200,000 acre foot lake and will drive two 30,000 K.W. generators.

Green-Tecon has standardized on B & B "POWERSTEEL" on the job. "POWERSTEEL" is producing more yards on shovels, draglines, hoist lines, scrapers and dozers! G-T men are enthusiastic about it. For example, Equipment Superintendent Howard Flake (shown above) made this typical comment: "POWERSTEEL" is really some rope! It's giving us excellent service and has certainly cut down on our rope changes!"

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